THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JULY 2ND, 1921.

Observations
ON
THE PRINCIPLE OF REPEATED MEDICATION FOR CURING INFECTIONS.

BY

COLONEL SIR RONALD ROSS, K.C.B., K.C.M.G., F.R.S., F.R.C.S.

ENCOURAGING results are now being reported in the treatment of various parasitic infections—spirochaetes, intestinal amoebae, Plasmodia, Leishmaniae, Piroplasmodidae, trypanosomes, skin parasites, and even Bilharziae and Filariae. Some years ago all our efforts seemed to be aimed at finding, if possible, some agent which would extirpate the invaders after a single dose, or, at the most, after a few doses; but we are now observing that the medication must be repeated much more often than we had supposed. Even to-day, however, the number of doses which may be required to produce complete cure remains a very open question, and is discussed only in the light of empirical results, which are often few and not too decisive. It is high time, therefore, to examine the theoretical principles upon which repeated medication may be or should be given.

The best known case is that of malaria. It has been recognized for centuries that cinchona bark or its derivatives will generally reduce an attack or a relapse of malarial fever in a few days, but nothing definite has been laid down as to how long the drug should be continued. When I went to India in 1881 the practice was to give the patient about 30 grains of quinine daily (sometimes much less) while the fever persisted and for three days afterwards, and then to discharge him to duty as "cured." I protested against this custom in the *Indian Medical Gazette* for February, 1896, and advised at least one fortnight's treatment in hospital. Later I increased this period to three weeks, but when I myself was infected in 1897 I thought still better of it and took 10 grains of quinine daily for four months; I did not have a relapse. In my lectures, and in my book, *The Prevention of Malaria* (1910) I recommended four months', and suggested even six months', continuous treatment. Early in the present century the Indian military authorities ordered six weeks' treatment, with good results. During the war practice varied greatly, the duration of treatment being abbreviated by military exigencies on one hand and prolonged by the issue of prophylactic quinine on the other hand. A period of two months was laid down in 1917 by the War Office at my suggestion (see the War Office publication, *Observations on Malaria*, 1919) for men invalided home. When Sir Alfred Keogh established a number of special malaria hospitals in the United Kingdom early in 1917 many experiments were commenced with a view to producing complete and early cure (Ibid.), but the results were most disappointing, and relapses occurred in large percentages of the cases after trial of many lines of treatment—intravenous and intramuscular injections of quinine, heroic oral doses, combined methods, quinine with arsenic, etc., kharsivan, and several nostrums which had been commended in medical literature—though, of course, all the lines of quinine medication caused great improvement while they were being given, except perhaps in very rare cases. Thirty grains of quinine daily for three weeks were followed, after stoppage, by relapses in a large percentage of the cases. Even treatments commencing with 100 grains a day and continued for nearly a month in smaller doses gave no guarantee of permanent cure, though they seemed to yield slightly better results on the average than did the lower scales of dosage. On the other hand, only 8 grains daily in four doses appeared to be as effective in reducing fever and parasites, as estimated by careful countings (T. Gardner). But 5 grains daily failed to prevent relapses—even while being taken; and without any quinine at all the patients remained heavily infected and generally became more and more anaemic. We concluded, therefore, that 8 grains daily or more sufficed almost invariably to improve the cases greatly while being taken, but failed to cure them completely even after six weeks' administration or more. There is much other literature to the same effect. What is the explanation?

By far the most probable theory to account for relapses in malaria is the one described in my book, and studied by D. Thomson and myself.[1] According to this theory the parasites continue to breed in the blood by the known method from the moment of infection until the last of them has died out; but their numbers are always varying greatly. A normal man of 10 stone (64.7 kilograms) weight contains (by one estimate) about 3,000,000 cubic millimetres of blood, and, allowing 5,000,000 red corpuscles per cubic millimetre, he should have 15,000,000,000,000 red corpuscles. We estimated that the lowest number of asexual mild tertian parasites able to cause fever was about 100 per cubic millimetre, or 300,000,000 altogether, with a much higher figure for malignant tertian (our cases were old infections). When there is considerable or high fever, the numbers range from about 5,000 to 300,000 per cubic millimetre; but in a fatal case in Mauritius, in 1908, I estimated that the parasites must have numbered over a million million. Between the relapses—that is, when there is no fever—the parasites often become too few to be found at all in the small quantity of blood examined (say, 1 c.mm.); but even if there be only one parasite per cubic millimetre, that would mean that there might be 3,000,000 in the body altogether. Thomson often succeeded, however, in finding very small numbers per cubic millimetre even when there was no fever, and these numbers generally increased two or three days before another relapse of fever. Similar variations in numbers of pathogenic organisms are found in other diseases; but, of course, there are certain species of parasites, such as Ascaris, Uncinaria, Filaria, Bilharzia, which, according to our present knowledge, are not capable of multiplying inside the body, except by fresh arrivals from without.

What causes variations in the numbers of those parasites which can multiply within the body? Why do they not always maintain a fixed population? I presume either that the host's resistance varies or that an overcrowding of the parasite population produces substances injurious to themselves. Perhaps the latter hypothesis may explain the limitation of the parasite population when it has reached a very high figure; but the resistance-hypothesis seems necessary to explain the entire extirpation of the invaders, which certainly often occurs without treatment in many diseases, such as malaria and relapsing fever, for example. There may also be some biological law which limits the numbers of non-sexual cell divisions. However this may be, there is much evidence to suggest that unfavourable climatic conditions, fatigue, starvation,

excess, or concurrent illness, tend to precipitate relapses—at least in malaria. The picture most of us have formed is that while the infection continues there is a constant struggle, with varying fortunes to either side, between the invaders and the opposing forces of the host; and that in hosts who survive the invaders are finally mastered, though, perhaps, not until years have elapsed. There is, I believe, a general mathematical theory that during any constant struggle between opposing forces (for example, between stream and wind) a wave condition of alternating success or failure for either side is produced. The alternating "rallies and relapses" seen in so many diseases, including malaria, seem to suggest this class of phenomena.

Principles of Treatment.

By our treatment, then, we are called upon to help the patient in his fight. We may attempt this either by trying to assist his natural powers of resistance, or by attacking his enemies by specific medication. Many people write as if the former process is the proper one: but unfortunately we really do not know how to assist natural powers of resistance. Keeping patients at rest, "feeding them up," giving them tonics, etc., sound very well, but the patients too often continue to relapse just as before. We have little real evidence to show that people who are in the best of health at the moment of infection suffer less severely when they are invaded by some parasitic infection than do people who have previously been in poor health—rather the converse, in fact. Certainly I think that rest and good feeding help patients to overcome the illness due to parasites. But that is another point; we must not confuse the illness caused by parasites with the parasites themselves; and a patient who is better able to resist the effects of the parasitic invasion does not necessarily possess greater natural power of extirpating the invasion. We are too prone to confuse these two issues. Indeed, experience tends to show that the healthy, vigorous, full-blooded young man is more likely to suffer from very acute attacks than are less healthy people. The obstinacy of infections probably depends chiefly upon unknown natural qualities in the blood or tissues, favourable or unfavourable to the invaders.

However this may be, the clinician is always driven to try some parasiticidal drug if one be known. If we class specific serums in this category, and possess them for a given kind of infection, we use them for this purpose; but if not, we have to fall back upon other agents which have been empirically recommended, sometimes after great general experience, such as quinine for malaria or ipecacuanha for amoebic dysentery. But the question at issue is, How exactly are we to use such drugs?

Apparently most people have usually thought that a few very large doses may be able to destroy all the invaders at a blow—hence heroic doses both of quinine and of ipecacuanha. But are we so sure of this? There are reasons for thinking that the patient's body is so affronted by the massive dose that it endeavours to cast it forth at once. The studies "On Quinine in Animal Tissues," by W. Ramsden, I. J. Lipkin, and E. Whitley, published some years ago,[2] certainly do seem to suggest that a heroic dose of quinine put straight into the blood is cast out by it almost at once, while a much more moderate dose is likely to remain there longer and to do its work on the Plasmodia. Several biologists to whom I have mooted the matter are inclined to agree with me in this. The patient's blood and tissues are obliged, so to speak, to protect themselves against any foreign chemical agents as much as against invading parasites. When suddenly subjected to a great dose of something, they adopt the usual course and get rid of it as soon as they can, not being aware that the dose was intended to help them—to speak metaphorically. According to this hypothesis, then, a large dose may possibly be cast out so rapidly that in the end actually a smaller amount of it may reach the parasites to poison them than if a small and more easily tolerated dose had been given to begin with. Probably this accounts for the little difference between the effects of small and of large doses which we observed during the war in the home hospitals. Where we find little difference between the results of, say, 10 grains a day and 100 grains a day, we suspect that there has been some fallacy in the arguments which led to the adoption of the larger medication.

But another point must now be remembered. Whatever dose be given, are we sure that it will reach all the parasites in the body simultaneously? Perhaps so in certain cases, as in those of parasites which live in open sites, such as the skin and intestines, and are easily attacked by drugs—though even these cannot always be destroyed at once. But how can we expect to obtain such a decisive result in the case of millions of organisms capable of constant reproduction and occupying more recondite positions in the body? We must disabuse ourselves of the notion that the parasites in a host are like fish in a bowl, which can be destroyed all together by mixing a single dose of poison with the water. They must be much more like the enemy on a battlefield many of whom will escape in their trenches and dug-outs the most violent barrage; and, as I for one have always thought and taught, there must be many recesses and backwaters of the circulatien which, possibly, no medication bearable by the host can reach. This has been ably suggested and perhaps* proved by the chemical work just mentioned—especially by I. J. Lipkin's paper. According to it, quinine is concentrated in the suprarenals, kidneys, and spleen; cast out quickly from the lymphatic glands and the blood; and destroyed by the liver and the muscles. If so, even in the quickly moving circulation, large numbers of the Plasmodia are likely to escape any dose that we can give—especially in view of the fact that a stasis of them often occurs in certain capillaries. Lastly, if we lift the quinine-barrage for a long enough interval the enemy will immediately begin to bring up reinforcements in the form of fresh generations of spores and make good what reduction we had previously succeeded in effecting.

Single-Dose Reduction Rate.

Put in this way, these considerations appear simple enough, but many fail to realize them in practice. Suppose, for example, that 30 grains of quinine reduce the Plasmodia to one-half; then, in order to reduce 1,000 million of them to one we must probably repeat this dose, not twice nor thrice, but thirty times; and even after this we must continue to repeat it, say, four times in order to make nearly sure of destroying the last remaining Plasmodium and its spores. For if P be the original number of a parasite population, and p the number remaining after a course of treatment, and if $\frac{a}{b}$ be a fraction which represents what I call the "single-dose reduction rate"—so that after this single dose $p = \frac{a}{b} P$: then, if we can reduce p still further by giving a succession of n similar doses, all of which have the same effect, we should expect that ultimately

$$p = \left(\frac{a}{b}\right)^n P.$$

Hence, taking logarithms of both sides, we have

$$n = \frac{\log. P - \log. p}{\log. b - \log. a},$$

where, of course, P is greater than p and b greater than a.

The following table will help the reader to compute without logarithms the number of doses which should be required on this hypothesis to reduce P to p, when both are expressed as powers of 10. Suppose that also $b = 10$ and $a = 9, 8, 7, \ldots$ in succession; so that Row A of the table gives single-dose reduction rates varying from 0.9 to 0.1. Next let $P = 10$ and $p = 1$; then Row B will be the corresponding values of n calculated from the equation $n = \frac{1}{1 - \log. a}$, where n is the number of doses required to reduce 10 parasites to 1.

Table.

A = 0.90, 0.80, 0.70, 0.60, 0.50, 0.40, 0.30, 0.20, 0.10.

B = 21.85, 10.32, 6.46, 4.52, 3.32, 2.51, 1.91, 1.43, 1.00.

In order to obtain from this table the number of doses needed to reduce P to p (given in powers of 10), we have only to multiply the figures in Row B by the difference between the numbers of zeros in P and p respectively. For example, if a single dose reduces the parasite population from 1,000,000,000 to 800,000,000, then 10.32 doses should reduce it to 100,000,000, or one-tenth, and 9×10.32, or 93 doses say, should reduce it to 1. But this will not extirpate the infection entirely, for we must still destroy the *last* Plasmodium. The chances against doing so by a

*H. W. Acton and H. King (*Biochemical Journal*, xv, i, 1921) have recently criticized the method of Ramsden and Lipkin and find that it fails to yield 30 to 40 per cent. of the quinine added to samples: but this should not greatly impair their comparative results mentioned above.

single additional dose will be 5 to 1, for a reduction-rate of 0.8 (= 4/5), because in such case only 1 out of 5 parasites is destroyed by the single dose. Hence I suggest reduction to another one-tenth at least, which means another ten or eleven doses; but even this by no means quite exhausts the chances of survival which the last of the invaders may possess.

Such calculations are useful, because they help to define and classify our ideas; but no one imagines that the same dose will always have exactly the same effect. Many causes of which we have little knowledge, such as indigestion, fatigue, etc., may diminish the effect from day to day; others, especially the parasiticidal bodies generated by the patient himself, are likely to increase the effect. On studying again the work of D. Thomson and myself already referred to, together with some additional statistics which he obtained, I think that in malaria cases (mostly *P. falciparum*) in England, daily doses of 30 grains of quinine give each a reduction rate of 0.8 or a little less (say 0.75). The fall in the number of parasites was, however, often much greater immediately after a smart attack of fever associated with many parasites, which I attribute to the stimulation of the patients' own antibodies by the attack and not to any change in the dosage of quinine (since we usually gave the same dose throughout). I presume that as cases advance into the second year of infection and longer, these antibodies become more and more powerful—which, as mentioned above, is one possible explanation of ultimate spontaneous cure; so that the same dose of quinine may apparently have a more marked reduction rate in old than in new cases.

On the other hand, newly inoculated Plasmodia may possibly be able themselves to resist the drug more effectively than their descendants in the same host. Certainly, in Salonica many cases became infected while they were actually taking 30 grains of quinine a day for months—a dose more than sufficient to produce, say, an 0.8 reduction rate now, when the same cases have become chronic. Considerable light is thrown on this subject in a recent paper by Etienne and Edmond Sergent,[3] who have experimented on over 1,000 canaries, which they inoculated with *Plasmodium relictum* and then treated with subcutaneous injections of quinine. Contrary to previous Italian reports, the drug acted upon this Plasmodium just as it acts on the human species; but large doses, equivalent to 30 grains or more for men, given before inoculation, during it, or after it, failed to exclude infection; though, if given during the incubation period, they reduced the numbers of the invaders and the illness caused by them (the true value of "prophylactic quinine"). Personally I am inclined to think that the more marked reduction rates apparently obtained in older cases are probably due rather to the combined effects of the quinine and the antibodies than to any diminished resistance in the parasites themselves.

The authors give the case of a bird in which the Plasmodia appeared to become quinine-resistant after nine months' quinine treatment and remained very virulent in two passages through two other canaries; and they think it is a case of a genuine quinine-resistant strain. We have had a few similar cases in our malaria camps, and also in the Tropical Diseases Clinic (Chelsea) of the Ministry of Pensions out of very many thousands of cases; and I now have two cases who have resisted 20 grains or more for a month. But, in spite of what evidence has been shown for it, I feel very doubtful regarding the whole theory that strains may become drug-resistant. We do not know how quinine acts, whether as quinine or as a metabolite. The blood of some persons may perhaps throw out either the quinine or its metabolite so quickly that these have no time to affect the parasites, or can affect only a very few of them; while in other persons who have been long and irregularly dosed the blood may possibly gradually acquire this power in self-protection. Probably both kinds of cases exist; and I remember one patient at least on whose Plasmodia quinine had from the first no apparent effect at all, and who died in consequence—several cases of the same kind were reported during the war. But I think that such are cases of idiosyncrasy in the host, and not in the parasite.

The term "single-dose reduction rate" used above refers to the total reduction of the parasites actually obtained even when the proliferation of such parasites as escape destruction is taken into account. Obviously, if the treatment be interrupted long enough to allow large numbers of organisms to proliferate in the interval, then the final result will receive a set-back. Calculating on the basis of the incubation period, I judge that *P. vivax* multiplies roughly at the rate of ten to one every two days, and *P. falciparum* still more quickly. Hence, perhaps, we may infer that any intermission of continuous treatment for one or two days may allow the invaders to multiply ten times in the interval, thus undoing all the good work effected by the whole number of doses given according to Row B in one column of the table. I am quite sure that the reason why most returned patients in this country continue to relapse is that they stop their quinine (often on medical advice) a few days or weeks after an attack of fever. The histories which they almost invariably tell us at our clinic are that they have been instructed to continue quinine only for a short period. Suppose that during this period they have reduced the invaders to 1,000, then ten or twelve days afterwards the numbers will return again to the fever point, the patient will take more quinine, will stop it again too soon, and so on indefinitely, allowing relapse to follow relapse for months or years. The whole object of continuous medication is frustrated by such interruptions, especially when comparatively small doses are given; and success will be attained only if the clinician warns the patient strongly that the remission of quinine for one or two days will cost him all the fruits of seven to ten days' previous treatment. It may be a different matter if large doses, such as 30 grains, are given, say, twice a week, because then the drug may remain at sufficient strength in the blood during the intervals; but out-patients will seldom submit to such dosage, and the daily dose of 10 or 15 grains is better. Anything under 60 grains a week appears to be almost useless in the large majority of cases; and anything over 15 grains daily seems only to be required when there is fever, and say for a week or fortnight afterwards, followed, of course, by the 10 or 15 grains daily for months.

Exhaustion Period.

The period of treatment required to exhaust the infection entirely on this hypothesis may be called the exhaustion period. For malaria, in order to reduce say 1,000,000,000 Plasmodia to 0.1, we must multiply the figures in Row B of the table by 10. Then, if the single-dose reduction rate for 10 grains of quinine averages 0.8, the exhaustion period for a series of daily doses should be 104 days; but if the average reduction rate is 0.7 the exhaustion period should be only 65 days. Anything approaching decisive scientific statistics on the subject are, I think, not to be obtained; because, to obtain them, we should have to keep the same patients under strict supervision, not only for the whole period of treatment but for months or years afterwards, unless we were free to test the blood of treated cases by experimental inoculations into healthy human beings. But from clinical results extending over forty years I think that a 10-grain daily dosage carried out rigorously for three months (eighty-four days) is sufficient in the large majority of cases. This means an average single-dose reduction rate of 0.7602. In early infections perhaps four months would be safer; and in all cases, of course, reinfections must be excluded from our calculations. The two divisions which were brought from Salonica to France in 1918 were treated by Colonel J. Dalrymple on the three-months' principle (see the War Office publication mentioned), and we have had very few of these men in our clinic since then. In that clinic we have now treated 24,000 cases of real or alleged malaria infection on the same principle since October, 1919, and all I can say is that the large majority of those who take their quinine properly seem to be finally cured; but that those who are excused the third month of the course, or who do not take their medicine, or who are given doses below 10 grains daily, or for whom "tonics," etc., are substituted for quinine, generally continue to relapse as before. And I venture to speak still more definitely in the same sense with regard to cases in my private practice, who have no interest in pretending to have relapses when they are cured, or in pretending to be cured when they are not.

I do not say that no one can be cured of malaria under three months' continuous quinine course. That will probably depend upon two factors—the patient's own parasiticidal bodies and the receptivity of his blood for the drug. Certainly numerous persons have recovered entirely, either spontaneously or after only short courses. But we never

know when this is going to happen; and it is therefore seldom safe to order less than the three months' course from the date of the last relapse.

The comparative virtues of the various cinchona alkaloids and their salts and of different modes of administration cannot be dealt with here; and discussion of the best means of treating the rare intractable cases would also be out of place, though I must repeat that in my opinion such are due to natural or acquired quinine resistance in the host and not in the parasite. It is a misfortune for the whole Empire that, in spite of the loss of millions of pounds over the Salonica malaria, more investigation on such points is not now being carried on. But our Governments are incorrigible on the subject of research.

With regard to continuous medication in other infections, it appears to me probable that the quick cures which are often reported (especially in spirochaete infections) are really due chiefly to the patient's parasiticidal bodies, to which the curative drug only adds the finishing touch. We may possibly, however, find drugs which possess more marked reduction rates (for multiplying parasites) than those shown in the table. At our clinic many of us have had very encouraging results as regards intestinal amoebae from a form of continuous medication with ipecacuanha suggested by Colonel Drake-Brockman, and similar to that which we employ in malaria. I give from 3 to 10 grains of powdered ipecacuanha in pill, without any adjuvant, on an empty stomach at bedtime every night for months without fail. Others give the drug in powder or cachet, or add small doses of Dover's powder. The principle involved seems to be the same as that which I have endeavoured to indicate, as briefly as possible, in this paper.

REFERENCES.

[1] See also *Proc. Roy. Soc.*, B, 1910; *Ann. Trop. Med. and Parasitol.*, 1910, vol. iv, p. 267; and *Journ. Roy. Army Med. Corps*, June, 1917.
[2] *Ann. Trop. Med. and Parasitol.*, vol. xii; and Lipkin, Ibid., vol. xiii.
[3] *Arch. des Instituts Pasteur de l'Afrique du Nord*, I, 1, March, 1921.

ON CHRONIC NASOPHARYNGEAL INFECTION, CHRONIC TOXAEMIA, AND DISTRESSED HEART IN CHILDREN.*

BY

C. PAGET LAPAGE, M.D., M.R.C.P.,

LECTURER IN DISEASES OF CHILDREN, MANCHESTER UNIVERSITY; PHYSICIAN TO THE MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY; AND TO ST. MARY'S HOSPITAL, MANCHESTER.

NOBODY will dispute the statement that nasopharyngeal infection is a very common trouble, especially in manufacturing districts; and that, though it is often acute and obstructive in nature, it is also very often present as a chronic infection with catarrhal rather than obstructive signs. The points which I wish to bring to notice are:

1. That this chronic infection of the nasopharynx serves as one of the most important foci from which organisms may generate toxins which cause a chronic lowered state of health in the child.
2. That the nasopharyngeal infection may be due to different kinds of organisms, the influenza bacillus being an especially potent factor and often acting as the initial infecting agent, though it may not remain in the nasopharynx.
3. That this toxaemia often gives rise to heart lesions, and that, though these heart lesions may be valvular, they are often of quite a different nature from valvular lesions—that is, they are more in the nature of nervous irritation than of inflammatory troubles affecting the heart.
4. That these special forms of heart trouble need methods for diagnosis which are not usually employed, while they also need different treatment from that usually prescribed.

Chronic Nasopharyngeal Infection.

Such cases may be either obstructive or merely catarrhal. The obstructive ones are easy to recognize. The catarrhal cases are, however, often overlooked if a careful history is not taken from the parents. The child has not necessarily adenoid facies, but has a history of chronic catarrh, of frequent colds and of a running nose, while on making an examination mucus may be seen dropping from the nasopharynx. The tonsils may not be enlarged. Another point is that the glands behind the ear are often enlarged; these are the highest of the posterior cervical glands and less commonly the posterior auricular glands. It is an interesting point because it shows which glands drain the nasopharynx.

Chronic Toxaemia.

It is a commonplace that a septic focus may give rise to chronic toxaemia; dental caries and chronic gastro-intestinal infection are the two examples which occur at once. The nasopharynx is another situation from which infective trouble may cause a very definite toxaemia. The symptoms are: pallor, which may often be very marked indeed; darkness under the eyes, especially on getting up in the morning; pains may occur which can best be described as those usually known as "growing pains." These are said to be especially associated with rheumatism, but they are to my mind quite as often met with in the chronic toxaemia of nasopharyngeal infection due to various organisms.

Amongst other general signs we meet with slackness of the ligaments, especially those which are subjected to strain in a growing child, the spine, and the arch of the foot; in this way scoliosis, or general round-shouldered carriage, may occur, or flat-foot may make its appearance. The extremities easily become cold; the pulse becomes rapid and very easily disturbed in rhythm. There may be anaemia in addition to pallor. The heart signs and symptoms I shall describe later. The thyroid gland is not uncommonly a little enlarged. Enuresis is sometimes a symptom.

The nervous system, next to the heart, shows the most important symptoms and signs. The child often has bad headaches and is irritable and nervous. The mother says that the child's disposition has changed, and that he or she has become peevish, moody, or lackadaisical, and in some instances very depressed. Disturbed sleep is also common. If the child has a vivid imagination, all sorts of morbid ideas may occur. And of course, as one would expect, children of the neurasthenic type, who are those who have been endowed with a nervous system which feels the stress and strain of life, are the first to give out the above signals of distress when any lowering agent such as toxaemia makes its appearance.

Tic or habit spasm is common. It is necessary to make a clear distinction between this and chorea. Chorea is generalized and indiscriminate in that sudden and diverse movements of practically any part are provoked. In tic, on the other hand, there is a peripheral stimulus which acts on the excitable nervous system, and finds expression in a constant repetition of one particular movement. The spasm may affect one group of muscles, or, later on, change to another group.

The common forms of tic are: (1) blinking the eyes; (2) contorting the mouth (I have known cases punished in school for pulling faces where in reality they have had tic); (3) drawing the head round to the shoulder; and (4) constant clearing of the throat. This last may, of course, be present in a child who really has mucus at the back of the throat.

Chorea is a rheumatic manifestation, and is not a common accompaniment of nasopharyngeal toxaemia; on the other hand, tic or habit spasm is. In association with this I should mention the differential diagnosis between rheumatism and toxaemia. The term "rheumatism" has come to be used too loosely in relation to disease in children; it has often been used to give a name to cover a variety of symptoms, just as influenza is a convenient diagnosis when there are no clear indications as to the cause and nature of acute illness. To my mind the term rheumatism should at present be limited either to (1) the acute cases with hyperpyrexia, with joint inflammation; or to (2) those with throat trouble and chorea and morbus cordis; or to (3) those with subcutaneous nodules and, as often happens with these nodules, very acute and rapid valvular disease and heart failure.

The organism which causes acute rheumatism may cause chronic toxaemia, and no doubt it often does; but there is no doubt that other organisms may give rise to the signs and symptoms of chronic toxaemia, therefore these signs and symptoms should not be labelled as rheumatic.

* An address, the substance of which was delivered to the Bolton Medical Society on December 7th, 1920.

Irritable or Distressed Heart.

Heart trouble may be either (1) actual inflammatory trouble, which gives rise to endocarditis, pericarditis, or myocarditis, or possibly a combination of all three; or it may be in the nature of (2) loss of tone of the muscle with toxaemia, but without actual infective inflammation; or it may be (3) irritability due to disturbance of the nervous supply. Now, though infective trouble of the heart together with inflammatory disease of valves or surfaces may arise as a result of nasopharyngeal infection, it is not my purpose to deal with it here. We shall, therefore, consider only two classes of heart trouble, which I shall name as (1) the muscle-relaxed heart (the lax heart), and (2) the nervous, irritable heart (the tense heart). Neither of these gives rise to bruits or to dilatation which is easily discernible by the ordinary methods of palpation, percussion and auscultation. The pulse in the lax heart is slow, but quickens abnormally with exercise, while the pulse in the irritable heart is always beating rapidly, and reacts especially to emotion and mental stress; but—a very important point—it may be slowed by exercise.

Differential Diagnosis.

Before we diagnose toxaemia following nasopharyngeal infection we must be careful to exclude other conditions and other toxaemias, and such a differentiation is often a matter of considerable difficulty. First, non-infective conditions may give rise to signs and symptoms of the kind I have mentioned. These are—bad hygienic conditions (which include constant underfeeding or unsuitable feeding), loss of sleep, crowded conditions of living, and mental stress. This is the lot of many children at the present time. A physician who has seen a worn-out child at the out-patient department, and then seen the extraordinary improvement which a few days in bed in hospital may effect, will realize this. In fact, such a rest is valuable as a means of prognosis, because the marked improvement following good hygiene shows that the trouble is non-infective.

Another condition is cyclical albuminuria. This will give rise to pallor and debility, while the presence of albumin may only be detected by frequent examination of the urine. Amongst infective conditions are oral sepsis and chronic ear discharge, and other forms of infection which may be associated with the nasopharyngeal trouble. There is, however, a more important form of infection which gives rise to chronic toxaemia—more important because it is less obvious—and that is tuberculous infection of the lymphatic glands, thoracic or mesenteric. The following case illustrates the difficulty, and the means of diagnosis.

Boy, A. H., aged 6 years.

This boy was brought to me in May, 1919, with a history of having had an attack of influenza in 1918. He had not been well since. He had had no appetite, had had one slight attack of influenza since, and had also had an attack of acidosis. On examining him I found that he had slightly enlarged tonsils and adenoids, and I made a note that the chest was suspicious of tuberculosis—that is, it was thinner than usual and showed a slight outgrowth of downy hair, but that it showed no definite physical signs of any kind which pointed to tuberculosis. Apart from this the boy presented no signs of illness, except that his heart rate increased too rapidly in response to exercise. His symptoms were those of tiredness, debility, and pallor. I said that he might have to have his tonsils and adenoids removed, but recommended a change to the seaside. He was away for two months, and when he came again in August he was very well; the tonsils had diminished. In October, however, his troubles had returned. His tonsils were now slightly enlarged; he had disturbed nights, and the heart was again rapid after exercise; he went away again and once more improved in health. But he could not keep up his health at home, and did not react so well to the change as he had done previously. He now showed more evidences of strain and more marked pallor, and the darkness under his eyes. I asked his medical man to examine the urine frequently at different periods of the day, and after producing an artificial lordosis; but there were no signs of any albumin. We then examined his chest by *x* rays for enlarged bronchial glands and found definite evidences of tuberculous infection, though the lungs were not affected. His chest still showed no physical signs, except that D'Espine's sign was now present, the whispering pectoriloquy to 333 being heard as low as the third dorsal spine.

This case shows very well many of the points of the differential diagnosis between chronic nasopharyngeal and tuberculous toxaemia, which are as follows:

1. *History.*—An attack of influenza may be the starting point of either trouble, but if anything is more likely to be a precursor of nasopharyngeal infection. Colds are a common feature of both, though here again they are more marked in nasopharyngeal infection. The opportunity for infection with tuberculosis is of importance. If there is anyone in the house who is suffering from tuberculosis, the likelihood of tuberculous infection is, in my opinion, very great indeed.

2. *Symptoms.*—Breathlessness, pallor, chronic lassitude, are equally common in both; but growing pains and headaches are more likely in nasopharyngeal infection. Cough may or may not be present in both. In glandular tuberculous trouble the cough may be brassy, while that of nasopharyngeal infection may be either in the form of tic or habit spasm, or an irritating cough from the throat, due to mucus dropping from the nasopharynx.

3. *Signs.*—Slight rises of temperature may occur in nasopharyngeal toxaemia, but they are not nearly so noticeable nor so constant as those which occur in tuberculous toxaemia. Even the latter need careful observations for their detection. Night sweats, if present, point to tuberculous trouble, and so does wasting. The skin shows a loss of tone in both conditions, but it is not usually very great in nasopharyngeal toxaemia. In tuberculosis, however, the skin may show very marked changes; there is a great loss of tone, wasting, and often a marked dryness, together with the downy outgrowth of hair. The best description I can give to it is that it resembles the surface of dirty and rather dry dough. If anything, laxity of ligaments is more marked in nasopharyngeal trouble. Tic, growing pains, and irritable heart are not often seen in tuberculosis, but are quite common signs in nasopharyngeal infection.

The local conditions of the nose help us considerably in diagnosis, while an examination of the chest may show physical signs, though in most cases it does not. I should like to mention here that nasopharyngeal obstruction can give rise to interrupted breathing of quite marked degree in the upper lobes, especially if the child, being on its best behaviour, tries hard to keep its mouth shut and breathes through its nose during the examination. It is often a good plan to tell the child to breathe through the mouth while listening to the chest.

D'Espine's sign is valuable though not conclusive: the child is asked to whisper "three—thirty—three," and the stethoscope is applied over the spines of the lower cervical and upper dorsal vertebrae in turn. Normally no definite pectoriloquy should be heard below the first or second dorsal vertebra; but with enlarged bronchial glands the increased pectoriloquy may be heard as low as the third or fourth or fifth dorsal vertebra. The *x* ray examination shows us very definitely whether tuberculous glands are present, and it often gives an indication as to whether the tuberculous infection is quiescent or active; it also indicates the state of the heart. The Von Pirquet skin reaction can be tried. It is specific, as showing whether the child has had a tuberculous infection or not, but it does not necessarily prove that the disease from which the child is suffering at the time of the reaction is tuberculous. The reaction may be the acquirement of the child as a result of an old and healed tuberculous lesion.

The effect of treatment helps us to some extent in differential diagnosis. Rest and feeding will improve the tuberculous child more than one with nasopharyngeal trouble. Sodium salicylate improves the latter, and creasote with cod-liver oil the former. A change, especially to the seaside, improves both; but the child with nasopharyngeal infection shows the more striking results, because its amelioration depends more on climate. Much can be done for tuberculous infection by home treatment in the way of rest and open air, but removal from home atmosphere is often essential for nasopharyngeal infection. Finally, it must be noted that tuberculous infection has, as one of its most important early signs, nasopharyngeal catarrh, and that a combination of the two infections may occur.

Nature of Organism in Nasopharyngeal Infection.

Dr. Sellers, Pathologist to the Manchester Children's Hospital, examined nasal swabs from sixty-three of my cases. He found many different kinds of organisms, but no one kind occurred with great frequency. Diphtheroid organisms occurred in twenty-one, but, tested in five instances, they were found to be non-pathogenic to guinea-pigs.[1] The influenza bacillus was not often found in the swabs examined,

but an inquiry into the history of these cases showed that an attack of influenza was often the starting-point of the trouble. I have found this history so often that I am convinced of the potency of the effect of an attack of influenza in setting up a chronic catarrh of the nasopharynx. In this connexion we must remember the epidemic of 1918, and I am quite convinced from my experience that there has been a great increase of these cases of chronic nasopharyngeal toxaemia with tic and irritable heart since that time. The bacillus of influenza may not remain in the nasopharynx, but it has done its damage. It has set up chronic inflammatory mischief and it has lowered the resistance of the nasopharyngeal mucous membrane to other infections, and any other organisms are enabled to grow and multiply.

Treatment.

If there is nasopharyngeal obstruction, operation is needed; if not, local treatment of the nasopharynx should be tried. The nasopharyngeal toilet in children is not very easy, but with an intelligent child a good deal can be done in the way of douching and spraying. More important, however, are physical exercises and drill, which are directed to keeping the nasopharynx clear. I have seen great benefit from persistent treatment on these lines.[2] The value of change of climate has already been referred to, and this, when available, is perhaps the most important of all; but it is not easy for most children to have prolonged residence at the seaside unless they happen to be of boarding-school age and can be sent to a seaside school. The question of drugs can be summed up by saying that sodium salicylate is the most useful for the infection and toxaemia, followed by tonics in the form of either nux vomica or iron.

The treatment of the heart troubles is very important, and it is necessary to make a clear distinction between two forms: (1) The lax heart, and (2) the irritable (tense) heart. The lax heart needs a period of rest to recover from any dilatation which may be present, and then graduated physical exercises until tone is restored. The irritable heart is, however, quite a different matter; there is no dilatation, but only a very rapid pulse, which is stirred up especially by emotion and may be slowed by exercise. Dr. B. A. McSwiney, of the Physiological Department of Manchester University, and myself have been working lately at a series of tests—physical, emotional, and also one related to intrathoracic pressure—by which we hope to be able to evolve simple clinical methods of distinguishing between these two forms of heart disease. These tests are based on similar lines to those which Dr. Martin Flack has described with regard to testing candidates for the Air Force.[3]

The *x*-ray screen examination is also very useful, and the two varieties of heart trouble can be readily distinguished when looked for. The slow-beating heart, slightly dilated to the left, with an increased width from side to side at its lower part, shows up very clearly in comparison with the extremely rapid, and one might also say contracted, heart, which appears to be almost as wide in its upper part as in its lower. In this latter case it is quite obvious that, since the heart is not dilated, it is not necessary to treat the child by prolonged rest; this was shown during the war, when "disorderly action of the heart" was found to be improved by a series of drills and exercises. The trouble in these cases is that emotion and nervous control play a very large part in their production, and if the child can be taken out of itself and at the same time given suitable exercises the trouble will tend to disappear gradually. One must remember, however, that it is possible for dilatation to be superimposed upon irritability; in such cases a period of rest may be necessary before commencing the exercises. The point, however, is that some cases of heart trouble in children should be treated, not by rest, but by physical exercises.

I have arranged, in the massage department of my clinics, to have selected cases of irritable heart disease treated in this manner, and so far the results have been very encouraging. The children are set to play games which keep them fully engrossed, and if a little ingenuity is exercised this object can be attained.[4]

Prognosis.

This depends very much on whether treatment is continuous and thorough and on the lines recommended. I do not remember having ever seen valvular disease of the heart develop in any of the cases of purely irritable heart with which I have had to deal, though I have seen it develop after lax heart when rest was not persisted in. In conclusion, I wish to state once more that the ordinary methods of palpation, percussion and auscultation are not sufficient to diagnose these cases, and it is therefore necessary for us to adopt more delicate methods of estimating the heart efficiency by tests such as I have indicated.

REFERENCES.

[1] *Proceedings* of the Royal Society of Medicine, Section for the Study of Disease in Children, July, 1920, vol. xiii, No. 9, p. 143. [2] Hickling, BRITISH MEDICAL JOURNAL, January 31st, 1920, p. 147. [3] *Proceedings* of the Royal Society of Medicine, Section of Epidemiology and State Medicine, 1919, p. 35. [4] Medical Research Committee, Special Report Series No. 8, October, 1918, H.M. Stationery Office.

REMOVAL OF STONES FROM THE PELVIC PORTION OF THE URETER.

BY

W. H. BATTLE, F.R.C.S.,

CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL.

THE operations described in textbooks for the removal of a stone from the pelvic portion of the ureter, are nearly all devised with the evident intention of avoiding any interference with the peritoneum. Stones have been taken away successfully by direct incision of the ureter from the intraperitoneal aspect, followed by closure of the opening with sutures, but this, as a routine method, has not yielded the good results recorded where the extraperitoneal operations have been practised. There has therefore been, and is still, a tendency to avoid using the peritoneum in any way as a regular part of such a procedure.

The following methods are the chief of those recognized at the present time[1]—it is not necessary to describe them:

A. *Extraperitoneal*—
1. Exposure of the lumbar segment of the ureter.
2. Exposure of the whole length of the ureter.
3. Exposure of the ureter at the brim of the pelvis and in its pelvic portion.
4. Para-sacral route for exposure of the pelvic segment.
5. Vaginal route.
6. Vesical route for calculi in the intramural portion of the ureter.
7. Transvesical route for calculi lying in the lower two inches of the ureter outside the bladder wall.

B. *Transperitoneal*—
Exposure of the ureter at the brim of the pelvis and in its pelvic segment.

Advantages of an Opening into the Peritoneum.

There have been manifestations of a tendency to use the intraperitoneal route to some extent during recent years. For instance, Dr. Witherspoon[2] opened up the peritoneum to localize the stone, then sewed up the opening in the peritoneum very carefully. He afterwards peeled the peritoneum off the parietes, so as to enable him to extract the stone extraperitoneally.

Dr. Gibbon, of Philadelphia,[3] pointed out the advantages of combined intra- and extra-peritoneal uretero-lithotomy —"for doubtful cases and all cases where a stone is found in the ureter when the abdomen has been opened for some other condition." He records two cases in which stones were removed from the lower part of the ureter, having been found during exploration of the right iliac fossa. In both the appendix was removed and then the stone extracted through an incision made extraperitoneally.

Recent Opinions.

Mr. Kidd, when introducing a discussion at the meeting of the British Medical Association last year, advised an extraperitoneal operation, but conceded "that if anything can be gained it is permitted to open the peritoneum." In the discussion which followed that paper Mr. Grey Turner said that he thought it "advantageous to open the peritoneal cavity simply for the purpose of locating the stone

by exploring the ureter with the finger." Mr. Rowlands recommended "a long para-median extraperitoneal valvular incision displacing the rectus and peritoneum inwards, but did not like any form of intraperitoneal operation for the removal of a stone from the ureter."

During the period of the war, three adults (one female) came under my charge for the relief of symptoms due to the impaction of a urinary calculus in the pelvic portion of the ureter. By means of the *x* rays the position, shape and size of the stones were clearly shown. They were similar in size and appearance, being under half an inch in length and somewhat like date-stones in shape.

It was evident in the first patient that the stone would be difficult to find through an incision in the extra-peritoneal tissues only, and that it would not be easy to incise the ureter with confidence over the stone, because of its rounded and somewhat narrow presentation and distance from the surface.

Deliberate Opening of the Peritoneum as part of the Operation.

It was considered that the operation would be done with greater confidence and precision, therefore more rapidly, if a peritoneal opening was made at an early stage, and the fingers of the left hand introduced into the cavity of the peritoneum to locate the stone and steady it whilst the other hand was working in the subperitoneal tissue to the point which had been located where the incision through the wall of the ureter was required.

Experience of the Combined Method.

The result of the operation was so satisfactory in the first case that when the others presented themselves with a similar condition it was repeated for them. In none of these three patients could the oat-shaped stone be worked away from its original position in the ureter, even with the combined manipulation of the two forefingers, but, with the ureter, it was lifted upwards to an appreciable extent towards the external wound, and this rendered it more easy to make the liberating cut. The precaution of placing a strip of gauze beyond this point was taken in each, but only a small amount of healthy urine escaped.

At the depth these stones are from the surface it is almost impossible to insert any useful sutures to close the ureteral incision, and as in the absence of any stricture of the ureter there is very little tendency for urine to escape by this opening, it is unnecessary to prolong the operation by the attempt. The edges of the cut ureter fall nicely together and heal quickly, for when the ureter is steadied as described there is a clean longitudinal incision which soon closes. It is advisable to place a tube down to the bottom of the extraperitoneal wound, or a gauze drain, for a small quantity of urine usually escapes during the next day or two, and provision must be made for its easy evacuation.

Steps of the Operation.

This method may be briefly described as follows: An oblique incision is made from midway between the anterior superior spine and the umbilicus in the direction of the pubic spine. The sheath of the rectus is opened for the whole length of the incision, the muscle separated from its sheath, and strongly retracted inwards. The deep epigastric vessels are found and divided between ligatures. The posterior sheath and peritoneum are incised in the centre of the upper part of the wound to an extent permitting easy passage of the fingers of the left hand, which are carried to the place in the ureter where the stone has been shown to lie by the *x* rays. Before the final stage of the operation the abdominal contents are protected and pushed out of the way with a strip of gauze.

When the stone is located the forefinger of the other hand is worked extraperitoneally directly to the spot, separating the peritoneum to a sufficient extent down to and a little beyond the stone. An attempt may be made to bring the stone higher up in the ureter if this is thought desirable; it does not always succeed, but it can be lifted upwards and forwards with the ureter to a useful extent. In my cases the lining of the ureter at the point of impaction was rough, and this appeared to be the reason why the stones could not be moved before the incision of release was made. As the stone was so definitely localized and the part of the ureter where the incision had to be made so clearly defined, it was possible to cut cleanly along the middle of the prominence felt, without varying from the straight line. In addition, the fixation of the stone by the fingers of the left hand made it easier to avoid any accompanying artery, and enabled the incision of the ureter to be made firmly and accurately. The importance of this will be evident to anyone who has had to deal with a case of small stone in the pelvic portion of the ureter in a fat patient, when the stone is not steadied in the manner suggested.

There is another advantage of this fixation—the incision being quite under control, one is less likely to break up the stone when making the opening for its extraction.

No Risk of Peritonitis with Ordinary Care.

It must be apparent that there is no danger of causing a peritonitis by the added manipulation within the peritoneum which this method of operating demands. The opening of the ureter is still placed extraperitoneally, but some distance away, and when the incision of the peritoneum has been closed with a continuous suture and the muscle is sutured over it, it is not exposed to further risk. Any discharge which may appear during the after-progress is carried away through the lower part of the wound, which is left open for the passage of the drainage tube or gauze drain.

Use of Landmarks.

The various stages help in the quick performance of the operation, each being marked by some landmark.

Sometimes in doing these operations which involve a deep exploration into the pelvis there is a danger, especially in private when perhaps the *x*-ray plate has been forgotten and the lights are inadequate, that it may not be possible to find a small stone although it is known to be there and the cause of the symptoms from which the patient is suffering. It has not always been found. When it is acknowledged that the help of the fingers in the peritoneum is part of the operation, and that it should be used to find and afterwards fix the stone, a feeling of confidence is engendered which is otherwise apt to be lacking. Another advantage is the opportunity which is afforded for an examination of the kidneys or other parts (which might be affected by disease) should the symptoms suggest the possibility of complications.

There is no weakness of the abdominal wall as a result of the operation.

REFERENCES.

[1] Thomson Walker, *Genito-urinary Diseases*, p. 335. [2] *New York Medical Journal*, vol. i, 1904. [3] *Annals of Surgery*, vol. xliii, 1906, p. 743.

RESULTS OF INSTITUTIONAL TREATMENT IN SURGICAL TUBERCULOSIS.

BY

E. D. TELFORD, F.R.C.S.,

SURGEON, MANCHESTER ROYAL INFIRMARY; LECTURER IN PRACTICAL SURGERY, UNIVERSITY OF MANCHESTER; SURGEON, MANCHESTER EDUCATION COMMITTEE.

THERE have been published within the last few months a number of papers appealing for better treatment of the crippled child. These papers have made known schemes for institutional treatment excellent in their method and detail, but they have, with one or two exceptions, given little exact information as to the results likely to be obtained. Such appeals being of the nature of propaganda directed especially to the attention of local authorities and their medical advisers, it would, I think, much increase their value if some account of results were included.

The figures given in this article refer solely to the child crippled by tuberculosis, and embody the results obtained by me from work done at the Manchester Residential Schools for Crippled Children over the period 1905–18. These schools are maintained by the Manchester Education Committee, and occupying two large houses on the north side of the town, they provide in-patient accommodation for 114 cripples, of whom some 50 to 60 are cases of surgical tuberculosis of the spine and lower limb.

The fact that the schools are managed by an Education Committee involves two important consequences. The children admitted must be between the ages of 5 and 16 years, and it is, further, a *sine qua non* that they be in a sufficiently good state of health to be able to take the

ordinary school lessons. The age limit is unfortunate, since very many cases of surgical tuberculosis begin before the age of 5; in a large series of cases in which I endeavoured to determine the actual date of onset the average worked out at exactly 3½ years of age. Hence it is to be feared that we miss not a few early cases. The second consequence is, that as the institution is primarily a school, the type of case admitted is limited to early non-complicated cases and to chronic cases which have not suffered materially in general health.

The treatment of the cases has been on strictly "conservative" lines, with very careful and exact fixation. Abscesses have been treated by aspiration, and very little open operative work has been done. As the number of beds is so much below the needs of the situation, the cases admitted have been entirely those needing recumbent treatment, and therefore the results given in this paper are of necessity restricted to cases of tuberculous disease of the spine and lower extremity.

The schools having been in existence for sixteen years are in a position to yield exact information on the result of treatment, and I find that this information may be briefly stated as follows:

A very careful investigation has been made into the after-history of 159 cases which have been traced and examined; to minimize error no recently discharged case has been included. All the children dealt with in this report were discharged from the schools not less than three years ago.

Results in 159 Cases.

	Alive and Well.	Alive but Disease still Present.	Died.
Tuberculous disease of spine ...	34	10	26
Tuberculous disease of hip... ...	38	5	9
Tuberculous disease of knee ...	28	1	2
Tuberculous disease of foot ...	6	0	0
	106	16	37

The cause of death is not known in all the 37 cases. This figure includes two instances of death by accident, and there would, of course, be a certain mortality due to causes other than tuberculosis. Deducting the two cases of accident the number of deaths is 35, and we can obtain from the figures the following definite result: Out of 100 children between the ages of 5 and 16 years, treated under good conditions for tuberculous disease of the spine and lower extremities, 68 will be cured and able to attend an ordinary school or follow a useful employment; 10 will receive no permanent benefit, and 22 will die from the disease or its sequelae.

The very grave nature of tuberculous disease of the spine is well shown by the figures; of 70 patients with it no fewer than 26 are dead. The mortality is much less for disease of the hip; 9 out of 52. The knee shows only 2 out of 31. The 6 cases of disease of the ankle and foot recovered completely.

The development of abscess is always of grave omen, and it is interesting to note that of the 35 cases who died no fewer than 29 showed evidence of abscess formation on admission to the schools.

The results given above are not so favourable as others which have been published, particularly by more favoured institutions in the South of England. It would appear that the further north one goes the more virulent does surgical tuberculosis become—a state of affairs for which our adverse climate and absence of sun are no doubt mainly responsible.

A point of very real importance is the length of time needed for the treatment of these cases, since this length of time bears directly on the cost and number of beds required in any suggested scheme. The average time is certainly longer than is commonly supposed or usually indicated in the textbooks. I find that in my own cases of surgical tuberculosis of the spine and lower extremity the average duration of in-patient treatment is three years and two months.

SIGHT EFFICIENCY IN THE GENERAL POPULATION.

A CONTRIBUTION BASED ON THE EXAMINATION OF OVER 30,000 RECRUITS.

BY

J. KIRK, M.D.,

OPHTHALMIC SURGEON, BRIDLINGTON EDUCATION COMMITTEE; FORMERLY OPHTHALMIC SURGEON, GOVERNMENT HOSPITALS, PENANG.

FROM the beginning of December, 1917, to the signing of the armistice in November, 1918, I acted as the ophthalmic specialist to the National Service Recruiting Boards for the Edinburgh district. I served as a whole-time officer, and every recruit was brought to me to be graded according to his sight efficiency before any further examination was made. I was in this way able to obtain a considerable amount of valuable information which I wish briefly to detail and analyse.

At the beginning I only took notes as to the causes of rejection, reasons for lower grading, and general points of interest, but from March to November, 1918, I made a brief record of the sight efficiency of every man seen. About 16,000 cases were thus detailed. The Edinburgh district from which the recruits were drawn is unique. It is a microcosm of the country, as it includes not only an ordinary city and suburban population, but a large agricultural and mining district in addition. The inhabitants of the area also have comparatively very few aliens among them as compared with other large industrial centres.

Grading Standards.

The Ministry's instructions for the grading of recruits were:

Grade I.—Right eye, 6/24, correcting to at least 6/12. Left eye, less than 6/60, but fields of vision must be good. (This standard was altered on April 7th, 1918, to a minimum of 6/60 in either eye, capable of correction to 6/12 in either eye. The other eye to have 2/60 minimum, with good fields of vision.)

Grade II.—Right eye, 6/60, correcting to 6/18. Left eye may be less than 6/60, but vision fields must be good. (The lowered standard in this grade was 3/60 at least in one eye, correcting to 6/18. The other eye may be blind or missing.)

Grade III.—6/60 with either eye with or without glasses. The other eye may be blind or missing.

Grade IV.—Included all who were not up to this very wide-meshed standard net, and therefore considered unfit for any army service. It also included those who suffered from any progressive or recurring disease.

Results of Examination.

Working on these standards the percentages of the various grades among 16,000 recruits of all classes and occupations were as follows:

93.7 per cent. were fit for Grade I. Of this number 10.3 per cent. had errors of refraction which required correcting before they attained the standard.
4.2 per cent. with glasses and without were fit for Grade II.
1.6 per cent. with glasses and without were fit for Grade III.
0.5 per cent. were totally rejected.

Thus the total average of men with defective eyesight who did not reach the very low standard of Grade I unaided was 16.6 per cent. As a further guide to the level of sight efficiency in the general population of this country, if one takes 6/12 and better in both eyes as a reasonable standard, 23.8 per cent. of the total examined had defective eyesight.

To put the figures in another way, 12,320 recruits, or 76.2 per cent., had eyesight 6/12 and better in both eyes; 3,680, or 23.8 per cent., were below this standard. Of these, in 2,937, or 18.3 per cent., the sight deficiency was due to refractive errors without any obvious disease, and in 743 cases, or 4.6 per cent., there were morbid changes in the eye structures.

Myopia and Hypermetropia.

In regard to the proportion of the various forms of refractive error, myopia and myopic astigmatism, simple and compound, formed the majority. This follows from the fact that many hypermetropes were able easily to come to the standard of Grade I without glasses, and were not further examined.

The percentage of grades in myopia and hypermetropia were as follows:

	Grade I.	Grade II.	Grade III.	Grade IV.
Hypermetropia ...	74 %	24 %	2 %	0.5 %
Myopia	55 %	25 %	18 %	2.0 %

The above table is a clear demonstration that hypermetropia is much less a handicap to efficiency in life than myopia.

Disease Classification and Percentages.

The following table gives in brief the percentage of disease incidence:

	Per cent.
Chronic blepharitis	4.0
Trachoma	1.3
Tear duct cases	1.2
Corneal nebulae (secondary in the majority of cases to eczematous conditions in early life)	15.1
Conical cornea	0.6
Interstitial keratitis	0.6
Injuries and old ulceration of cornea ...	0.7
Chronic and recurring iridocyclitis ...	5.8
Congenital cataracts	4.3
Traumatic secondary cataracts	3.5
Dislocation (congenital) of lens	0.4
Neuro-retinal choroidal inflammations ...	3.7
Optic atrophies	2.1
Tobacco amblyopia	3.1
Retinitis pigmentosa	1.0
Glaucoma	0.4
Retinal detachments	1.0
Choroidal ruptures	0.8
Congenital amblyopia	1.2
Congenital colobomas	1.0
Secondary and congenital nystagmus ...	2.6
Miner's nystagmus	0.5
Total loss of one eye	4.5
Convergent strabismus	17.5
Divergent strabismus	4.0
Paralytic squints and ptosis	2.2

It must be remembered that the foregoing figures and tables indicate what may be termed the static conditions of eye deficiencies as found in a large representative mass of the population, as opposed to figures drawn from hospital statistics, etc., which represent the current incidence of eye disease.

What light does this material throw on the various problems of sight efficiency from the economic and social point of view? This question may be conveniently considered under the heads of the effect of errors of refraction and of diseased conditions.

Hypermetropia.

Hypermetropia is not normally a pathological condition as opposed to myopia, which in a large percentage of cases must be looked upon as a definite disease. Hypermetropia, however, as my figures demonstrate, emphatically has associated with it the important economic disability of internal strabismus, with its crippling effect on efficient sight and the consequent production in a large number of cases of monocular amblyopia. The large number of cases of this condition met with in these examinations emphatically emphasize (1) the great importance of the efficient treatment of squint in early childhood, (2) the avoidance of conditions which favour its onset. A great deal of attention has been directed to the prevention of myopia in school children, but the prevention of this sequence of hypermetropia in children at the beginning of school life and in these earlier years is in many ways as equally necessary. The hypermetrope is not nearly so liable to develop squint as long as the general health and surroundings of the child are good. Concomitant convergent strabismus is a disease of civilization and of large crowded centres. My many years' experience of eye conditions in native races in the Far East confirms this view. The condition is an uncommon one in these countries among the children. Squint is, of course, seen often enough, but it is almost invariably secondary to ulcerative conditions and specific trouble.

Secondly, I found in a large number of cases of hypermetropia where glasses had never been worn, and where there was no squint or fundus changes, etc., a comparative amblyopia (as regards test-card vision at least) and correction by glasses was unsatisfactory. On the other hand, in uncorrected myopic cases in the absence of marked fundus change, correction was generally complete.

Myopia.

This condition was responsible for the majority of cases of low grading. In addition to my general figures I made a more detailed analysis of 500 cases in relation to age, occupation, total degree of error, accompanying physique, and existence of complications, etc. I found that myopia is essentially a disease of town dwellers and of industrial life.

In the examination of a series of 300 agricultural labourers I found only one case of axial myopia above 1 D. A similar number of town dwellers of mixed occupations gave 18 such cases. Of the myopics 77.4 per cent. belonged to the industrial classes, and comprised all varieties of occupations. The miners headed the list with 28.4 per cent. of the total. Others included such diverse callings as engineers, compositors, rubber workers, plumbers, blacksmiths, railway workers, bricklayers, joiners, and carters.

The essential factor in the development of myopia is the condition of health and environment in the period of tissue development and growth. Therefore the condition is commoner in the industrial classes and their children, and more common in the big towns where nutrition is deficient or unsatisfactory and surroundings unhealthy. My experience leads me to believe that the following are the root causes in the production of this disease:

1. That it follows a post-natal maldevelopment of the tissues of the sclerotic tunic produced by yet undetermined factors, but which may be deficiency in certain essential nutritional elements, exogenous or endogenous—that is, vitamins and necessary salts or glandular secretions—or a direct toxaemia due to some microbic infection allied or similar to that which produces the changes popularly known as strumous, and which may be secondary to the febrile diseases of infancy.
2. This developmental weakness appears often to be hereditary.
3. The condition may ensue from certain predisposing or auxiliary causes. The strain of school work is the commonly recognized one, but what I gathered from my observation on these Boards is that hard physical strain in the early years of adolescence is a most important and often overlooked factor. Young apprentice engineers seem to suffer unduly from myopic error, and I was most struck with its development among young miners from 18 to 25. This showed itself first generally as a simple astigmatism gradually developing into the compound variety. What I wish finally to emphasize is that myopia, as opposed to hypermetropia, is essentially a disease, and therefore should be and can be prevented in the great majority of cases. Healthy surroundings in the period of development, suitable nutrition, fresh circulating air, cleanliness, ventilation, freedom or immunity from the common infectious diseases of children, especially measles, will in time eliminate from the population this avoidable condition, which is the leading crippling factor as regards sight efficiency of a large proportion of the inhabitants of our country.

The Effect of the Various Diseases of the Eye on Grading.

The outstanding point was that nebulae of the cornea secondary to eczematous keratitis of childhood accounted for 15.1 per cent. of eye disability due to disease. This figure shows emphatically the seriousness of this condition as a factor in the reduction of sight efficiency and the necessity both for prophylaxis and thorough and early treatment.

Eye injuries gave 15 per cent. of cases of disability resulting from various accidental injuries resulting in serious maiming or entire loss of vision.

Syphilis apparently does not rank high in this district as a cause of eye disability. Iridocyclitis with secondary pupil occlusion gave a total of only 5.8 per cent. My experience in the native populations of the Far East used to give me far higher figures. Syphilis, gonorrhoea, and trachoma were the most common causes of eye disability in the eastern tropics. Tubercle, struma and the diseases secondary to maldevelopment and malnutrition take their place in this country.

Miner's Nystagmus.

Several thousand young miners in this district were called up for active service after the German advance in

March, 1918. Their average age was 21, and the result of my examination of them shows that at that age in this district miner's nystagmus is most uncommon. I only found 3 cases. There were, however, 142 cases of myopia. Of this number 36.6 per cent. had simple regular astigmatism below 2 D. The peculiar strain of the miner's occupation, therefore, may result in the development in the young miner of myopic astigmatism. This later becomes compound, and nystagmus often follows in more mature years. The sequence, therefore, in many cases of miner's nystagmus is, first, the severe muscular strain of coal hewing, development of myopic astigmatism, defective illumination, interference with normal fixation, and an ensuing nystagmus, varying in amount according to the general health and influence of intercurrent disease.

The influence of refractive errors on miner's nystagmus has been often discussed, but I do not think that the point that the miner's occupation is often in itself a cause of the initial refractive error has been put forward before. My experience with a large body of young miners has persuaded me that the beginning of the trouble may be accompanied, either as a causal or predisposing factor, by the development of a low degree of simple myopic astigmatism, which develops later into the compound variety, and that this astigmatism appears to follow the peculiar strain on the eye structures of the miner's occupation.

Summary.

To sum up briefly, the following are the effects of the various eye disabilities on the grading of army recruits. Such a grading will represent a corresponding handicap in civilian life.

Grade II.—High refractive errors, more commonly myopia. Corneal nebulae. Internal concomitant strabismus.

Grade III.—High myopia 50 per cent. of the cases. Corneal scars. Congenital cataracts and colobomas. Secondary and congenital nystagmus. Tobacco amblyopia. Various eye injuries.

Grade IV.—High progressive myopia. Chronic blepharitis (a very common disabling condition in this district). Recurrent iridocyclitis, cataract, glaucoma, retino-choroidal inflammation and degeneration, optic atrophies, trachoma. This last is a very rare occurrence in this part of the country.

In conclusion, it is, I think, evident that to a very large extent the problem of sight efficiency in a nation is intimately connected with, and runs parallel with, its general standard of sanitation and hygiene, and the healthy upbringing of its children.

A CASE OF PLACENTA PRAEVIA CENTRALIS, WITH SPONTANEOUS DELIVERY OF THE CHILD.*

BY

ALEXANDER C. BLAIR, M.D.,

HELMSLEY, YORKS.

PLACENTA PRAEVIA is sometimes, for purposes of description, divided into the classes of complete and incomplete, the term complete being confined to those cases in which the placental tissue covers the os internum when full dilatation occurs, and incomplete including all the other degrees of placenta praevia in which the implantation of the placenta implicates the lower uterine segment. Clinically such a description serves no very useful purpose, as it may be practically impossible to discover, at any rate before labour sets in, to what extent the placenta is abnormally attached to the lower pole of the uterus, and in practice one may meet with cases which are partial or marginal, or even lateral, in relation to the dilating os, and yet may be infinitely more dangerous to mother and child than those in which it is impossible to effect delivery without breaking through the placental barrier. The case which I describe is a notable instance of this. Yet there is no one who has had experience of such cases but knows that placenta praevia centralis usually gives rise to greater difficulty in effecting a satisfactory extraction than those varieties of the condition in which the presentation can be reached without much disturbance of the placenta.

With regard to the relative frequency of the different varieties of placenta praevia which are mentioned in textbooks a great diversity of opinion has been expressed. In my own experience of some 3,000 cases of midwifery in a period of about twenty-seven years the lesser degrees of placenta praevia have been met with once in every 350 cases, whereas complete placenta praevia was seen once in about 800 cases. Altogether I have had six. Yet such an authority as Pinard has stated that he never met with a case in which the placenta was uniformly adherent to the margins of the internal os, and that marginal is the most frequent variety. Something may be said for the locality—perhaps for the social standing of the patients also—in which the practitioner carries on his work. Notoriously the complication is rarely seen in primiparae, and it increases in frequency with the number of children borne, being probably greatest when the number is over seven. In districts where a family of three or four is the average it is likely that the incidence of placenta praevia will be considerably less than where larger families are the rule rather than the exception.

In reference to treatment, the general trend of obstetric opinion seems to be that on account of the dangers of unavoidable haemorrhage the pregnancy or labour, as the case may be, should be terminated as soon as possible after the condition has been diagnosed. At any time a massive haemorrhage may coincide with the beginning of labour, which leaves little hope for the mother or child unless promptly dealt with, so that the operation of election with some obstetricians is Caesarean section. And there can be little doubt that this operation when performed in a suitable institution by an experienced operator is the best in the interests of both mother and child. I have employed this method in one case with excellent results to both. I was far from the nearest medical assistance—some fifty miles. Labour had set in and the woman had had three convulsions previous to my arrival, but the child was still living.

In general practice, however, one finds an unwillingness among patients to undergo operation; yet if the case is seen before the onset of labour removal to a hospital should be strongly insisted upon. As a rule the patient and her friends ignore such advice, and the case goes on until an attack of haemorrhage is the signal for calling in the practitioner. By plugging the os and vagina thoroughly, and perhaps giving an injection of pituitrin, the bleeding may be arrested until the labour begins. There is frequently a malpresentation of the child, often a transverse, and there is little difficulty in piercing or pushing aside the intervening placenta and performing bipolar or internal version, as taught in the textbooks of obstetrics. The chief difficulty is the haemorrhage: it may be formidable and give rise to hurry and an anxiety to empty the uterus at all hazards. Hence the not inconsiderable danger of tearing the softened and highly vascular cervix, or even the lower uterine segment, if too great haste is used. Should the child present by the head I can now see no reason why the placenta should not be boldly pierced and the head delivered by high or medium forceps extraction, always provided one has the pluck to wait until the os has become fully dilated. By forcibly pressing over the opposite pole of the child through the mother's parietes the haemorrhage could be greatly controlled, and, if necessary, pituitrin might be administered to strengthen the pains. Needless to say, such a procedure premises a multipara with a normal pelvis and a foetus not too large for easy delivery. Where there exist doubts as to these two conditions I consider that version is the easiest and safest course in general practice. I have had no maternal mortality in my cases, and the infant mortality has been 50 per cent. The danger of puerperal infection is almost negligible, even in an ordinary bedroom, if a proper technique is employed. In the event of there being a desire for a living child Caesarean section, vaginal or abdominal, must be seriously considered. It is open to question how far this is justified in every case of complete placenta praevia.

The Case.

On the night of March 21st I was called to see a multipara, in her eighth pregnancy, on account of haemorrhage from the vulva. The confinement was expected in the last week in March or early in April. Up to then she had been in good health, and there was no history of trauma or anything likely to account for the condition. On

* Specimen shown and described at the meeting of the Yorkshire Branch of the British Medical Association at Leeds, April 6th, 1921.

examination by external palpation the foetus could be felt lying just clear of the pelvic brim, with the resistant plane of the back well in front of the left flank of the mother, and in my opinion it was probably a right occipito anterior. Per vaginam I found a thin trickle of blood issuing from the os, which was soft and boggy to the finger, while the canal was somewhat patulous. Through the os the characteristic stringy feel of placental tissue was unmistakable. As the labour had not begun I did not feel justified in trying to diagnose the precise variety of placenta praevia I was dealing with. In view of the dangerous condition of the patient, I strongly advised her friends to have her sent to a hospital; but in spite of my insistence the woman refused to leave home. I plugged the os and vagina tightly with antiseptic gauze and waited for some hours for labour pains to set in, but the uterus remained quiescent. She was kept in bed for a week, with daily renewal of the packing, and the haemorrhage had practically ceased by the end of the second day.

Late on March 27th I was called in great urgency: there had been a sudden gush of blood, and labour had immediately set in with extreme precipitancy, the pains following each other almost without interval, and she complained of great pain. I covered the distance to the house within a quarter of an hour, and, on my arrival, I was astonished and gratified to hear the cries of the newborn child as I entered the bedroom. There had been a fair amount of haemorrhage, but it was not excessive. The child was a healthy male, and weighed about six pounds. On examination the placenta was found in the uterus closely adherent all round the fully dilated os. The uterus contracted to the usual manipulations, but blood still flowed freely. With some difficulty the placenta was stripped from the uterine wall, and after a hot douche and an injection of pituitrin the discharge became normal. The after-history has been without incident.

An examination of the after-birth explains the manner of the child's delivery. Evidently the case was one of placenta praevia centralis, with a somewhat meagre covering of placental tissue near the insertion of the cord. Owing to the extreme pressure of the head directly upon the central part of the weakened placenta it had given way, and a rent was made sufficiently large to permit the passage of the child. So far as I know, such an occurrence is unique, and it suggests a method of dealing with cranial presentations that is direct and simple. In most of my cases of complete placenta praevia the part covering the os was membranous. The commonly accepted methods in such circumstances is to turn the child, and bring down a leg to act as a plug, making pressure over the fundus of the uterus to drive it well down into the pelvis. But in suitable circumstances—for instance, where there is a normal outlet, with a medium-sized child—even with a transverse presentation a cranial delivery might be essayed with the possibility of greater safety to mother and child. In version cases there is frequent delay with the after-coming head owing to the mass of the placenta acting as a partial barrier and the anxiety of the accoucheur to deliver before full dilatation in order to get a living baby. Often the child dies simply because of the prolonged second stage of labour, and I suggest that an imitation of Nature's rare method, as exemplified in my latest case, is worthy of serious consideration. However suitable Caesarean section may be for the institutional treatment of placenta praevia, it will be some considerable time before the general practitioner will be in a position to get his patients to consent to undergo the operation in all cases. And there is still a considerable body of opinion in general practice which inclines to less heroic measures.

The placenta was shown exactly as it appeared after delivery. The extent to which it was adherent was plainly evident by the ragged surface consequent upon its forcible detachment from the wall of the uterus. Otherwise it was perfectly normal in shape and size and in the insertion of the cord.

THE first appointments in the faculty of medicine of the proposed Columbia University Medical Centre, New York, are Dr. Allen O. Whipple, of the Presbyterian Hospital staff, as professor of surgery and director of the surgical service; Dr. Walter W. Palmer, Johns Hopkins University, as Bard professor of medicine and director of the medical service; and Dr. Herbert B. Wilcox, as Carpentier professor of diseases of children.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ANTITETANUS SERUM: ANAPHYLAXIS.

A MAN, aged 24, who was wounded in August, 1918, is under the impression that he received several doses of antitetanus serum, two while at the casualty clearing station, and two more after reaching England. He was hit in the face severely, and underwent several plastic operations. The wounds are now healed.

On June 2nd, 1921, as the result of a motor-bicycle accident, he sustained multiple lacerated wounds of the right hand; the wounds were very dirty, with much crushing of tissue and grinding in of dirt from the road. I dressed him in the morning, and told him to return for a prophylactic dose of antitetanic serum. This was given (500 U.S.A. units) subcutaneously over the right rectus abdominis muscle at 2.45 p.m. After walking three-quarters of a mile the patient very suddenly felt faint and vision became dim; after another quarter of a mile he collapsed unconscious near his lodgings. He was carried home by the police, having been unconscious for about twenty minutes. When he arrived home he "felt very sleepy and exhausted"; at about 4 p.m. he vomited, and did so at intervals until 6 p.m. I had been out in the country and only saw the patient at 6.15 p.m. I found him very collapsed and breathing heavily, and pulseless. I carried him upstairs to his bed, the foot of which I raised and "blocked" on chairs. Hot-water bottles were applied in each axilla, and he was given a cup of hot tea with sugar, and a stimulant mixture was ordered. The condition rapidly improved, but later, when he attempted to get out of bed to pass water, he fainted again, falling heavily and cutting his forehead; when I saw him at 9 p.m. he had been lifted back to bed and his pulse was palpable, though very poor and of extremely low tension. There was an urticarial rash on the abdomen and chest. At 10.45 p.m., when he reached a nursing home in an ambulance, his condition was much improved; the pulse was 100. He had a fair night, and next day, though he felt limp, was otherwise normal. He was discharged from the nursing home on June 6th.

Cambridge. R. SALISBURY WOODS, M.D., B.Ch.

Reports of Societies.

BIRTH CONTROL.

A MEETING of the London Association of the Medical Women's Federation was held on June 21st, with Mrs. FLEMING, M.D., in the chair. The subject for discussion—birth control—was opened by Dr. ELIZABETH WILKS, who strongly advocated State birth control as the only practical method of preventing the renewal of the race principally from the worst stocks. She pointed out that to-day the classes superior in intelligence and capacity practised individual birth control (not always from sufficiently justifiable motives), whereas the less intelligent and the degraded had neither the prudence nor the initiative to take any measures for limiting their offspring. Dr. Wilks thought that with a scheme of State birth control the unfit could be segregated and prevented from reproduction, but that this should be done in a manner more efficient than had been attempted by the Act for the care of the mentally deficient, which failed owing to the insufficient number of homes for maintaining defectives. On the other hand, by such means as changes in the marriage and divorce laws an increased birth rate among the fit should be indirectly promoted.

Mrs. SCHARLIEB stated that in over forty years' experience she had found that artificial limitation of birth damaged a woman's nervous system. The thwarting of any natural process eventually caused damage. Limitation of the family was not necessary—even in the poorest classes—in the interests of the wife. It removed the fear of consequences from the husband, and hence encouraged too frequent sexual intercourse. Mankind was already oversexed, she considered, and unbridled sex passions were

likely to lead to effeminacy and degeneration, to war against self-control and self-respect.

Lady BARRETT said that as the subject was now engaging much attention among the lay public it was very important for medical women to think out their own views. It would, she believed, be agreed that in certain cases conception must not be allowed—for instance, in cases of existing disease, insanity, and in working class women where health was already undermined by overwork. In what might be called "ideal cases," where control was practised with a view to enabling the parents to look after a few children more effectually, it was often assumed, quite unjustifiably, that every woman bore a child every year. It was also forgotten that privation and overwork rather than easy circumstances were proved to tend towards overproduction. In regard to the question of how birth should be controlled, in the first place it must be remembered that self-control was a great factor in education, and anything leading to the loss of this was harmful. The question of control should in most cases be discussed privately and individually. It should not be forgotten that, particularly in the working classes, child-bearing might have a less harmful effect on a woman than excessive sexual demand. The teaching of what was normal in sex was thus extremely important. Such teaching should be undertaken by medical women alone and individually in each case. She was much opposed to the present broadcast teaching among the lay public. She thought an opportunity for teaching arose at antenatal clinics, where medical women had an opportunity of getting into intimate relationship with mothers.

An animated discussion followed, in which Dr. FLEMING, Dr. STURGE, Dr. MCILROY, Dr. FAIRFIELD, and others took part.

Reviews.

THE PHYSICIAN'S OUTLOOK ON ABDOMINAL DISEASE.

PROFESSOR W. RUSSELL'S book, *The Stomach and Abdomen from the Physician's Standpoint*,[1] gives the mature conclusions of a teacher in the great medical school of Edinburgh, who began his career before the era of abdominal surgery and the light thus thrown on diagnosis, and is therefore well qualified to speak from long experience of the relative spheres of influence of the physician and the surgeon. Not unnaturally he feels that if the surgeon becomes supreme in the debatable territory of abdominal disease, the physician will have himself only to blame, as he should be responsible for the diagnosis guiding the treatment, of which laparotomy is but a part. Exploratory laparotomy has its place as a means of diagnosis, but it should not be allowed to be a screen for laziness and ignorance; the aim of the consulting physician and of the general practitioner should be the reduction to a minimum of operations which begin with the abdominal incision and end with its immediate suture; exploratory laparotomy is really a confession of diagnostic failure. While the physician's first duty is to arrive at an accurate diagnosis based on all the available methods of examination, he should also be sufficiently acquainted with surgical procedures and successes to understand and appreciate what he recommends patients to undergo at the hands of his colleagues.

As in the case of Professor Russell's recent book, *The Sphygmometer* (reviewed in our issue of March 12th, 1921, p. 386) this volume contains material previously published, but skilfully welded together; it deals, in seven sections, with the stomach, the pylorus and duodenum, the intestinal tract, the œsophagus, the liver, the spleen, and the kidney. These articles are on the lines of clinical lectures rather than exhaustive descriptions, are illustrated by cases, and constitute a record of much observation at the bedside. The view that hyperchlorhydria is neurotic in origin is regarded as "erroneous and brimful of evil consequences." Professor Russell submits, as the outcome of clinical experience, that some persons, especially the gouty and rheumatic, are prone to secrete gastric juice in excess, or in other words are the subjects of an acid dyscrasia. Air swallowing, commonly called flatulent dyspepsia, is a common though not generally recognized condition, usually associated with abnormal gastric secretion and generally hypochlorhydria, and should be treated by tactfully explaining to the patient what he unconsciously does, as improvement or cure is impossible without his co-operation; some help, however, may be obtained from valerian, nux vomica and acid. In the chapter on congenital hypertrophy of the pylorus attention is directed to the occurrence of symptoms in later life brought out by failure of muscle compensation or an attack of hyperchlorhydria. The section on the kidney does not include the various forms of nephritis, but deals with calculus, enlargement, hydronephrosis, nephroptosis, and coli infection.

[1] *The Stomach and Abdomen from the Physician's Standpoint.* By William Russell, M.D., LL.D. London: Baillière, Tindall, and Cox. 1921. (Demy 8vo, pp. xiii + 329; 35 figures. 15s. net.)

THE HISTORY OF ANATOMY.

CONSIDERING the great activity displayed in the study of medical history during the last generation, it is remarkable that a complete history of anatomy is still lacking. No full work on this subject has appeared since the monumental but antiquated treatise of Portal towards the end of the eighteenth century.

There is, however, a magnificent torso from the hand of LUDWIG CHOULANT (1791–1861), the most learned and accurate of all medical bibliographers, whose *Geschichte und Bibliographie der anatomischen Abbildung nach ihrer Beziehung auf anatomische Wissenschaft und bildende Kunst*, which appeared at Leipzig in 1852, has always been regarded as one of the most valuable of medico-historical reference books. In Choulant's time there were no posts available to medical historians as such, and much of his energy as professor of medicine was spent in opposing the introduction of modern "scientific" methods into clinical instruction. In his historical researches, however, he eagerly developed the scientific and critical methods of the new school, and his prodigious erudition, his painstaking accuracy, his unrivalled power of marshalling and condensing large numbers of diffused facts, his great capacity for systematic arrangement and his almost unerring judgement rendered him an ideal bibliographer. Sharing a common defect of the learned among his compatriots, he lacked those powers of generalization that are needed to make a historian, *sensu stricto*, and his works contrast unfavourably in this respect with those of such French authors as Flourens, Daremberg, Malgaigne or Nicaise. But no one has surpassed Choulant in providing and arranging the material out of which medical history can be written.

A translation of Choulant's book has recently appeared under the title, *History and Bibliography of Anatomic Illustration in its Relation to Anatomic Science and the Graphic Arts*.[2] The difficult task of turning this treatise into English was carried out by Dr. MORTIMER FRANK, of Chicago, who, unfortunately, has not lived to see the work through the press. Dr. Frank was a young ophthalmologist who had for some years exhibited great interest in medical history. He acquired a remarkable command of the intricate sources of the history of medicine, and bade fair to develop into one of the leading English-speaking medical historians. His early death, at the age of 44, on April 21st, 1919, is thus a serious blow to American medical scholarship.

In translating the treatise of Choulant, Dr. Frank annotated it, brought it up to date, and made it in every way a more valuable volume. He enriched it further by an account of anatomical illustrations in antiquity and in the middle ages, a department of investigation that had hardly opened in Choulant's own time. This section has been taken mainly from the works of Professor K. Sudhoff. The volume has been seen through the press by Colonel FIELDING GARRISON and Dr. E. C. STREETER. These accomplished historians have themselves added illuminating sections, the defect of which is their brevity, on "Sculpture and Painting as Modes of Anatomical Illustration"

[2] *History and Bibliography of Anatomic Illustration in its Relation to Anatomic Science and the Graphic Arts.* By Ludwig Choulant. Translated and Edited, with Notes and a Biography, by Dr. Mortimer Frank; with a Biographical Sketch of the Translator and two additional sections, by Dr. F. H. Garrison and Dr. E. C. Streeter. Chicago, Ill.: The University of Chicago Press; London: The Cambridge University Press. 1920. (Roy. 8vo, pp. 452; illustrated. 10 dols. net.)

and on "Anatomical Illustration since the time of Choulant."

The volume is a large and expensive one, but the number of facts to be marshalled is enormous, and the work is crowded with admirable illustrations. It forms, undoubtedly, the most valuable collection of data on the history of anatomy which has yet found a home between two covers.

X-RAY DIAGNOSIS.

THERE are not many books entirely limited to *x*-ray diagnosis, and it is therefore not surprising that that by Drs. HOLMES and RUGGLES, entitled *Roentgen Interpretation*,[3] originally published in 1919, has already reached a second edition. The authors have found it necessary to make few alterations. Some illustrations have been added and one or two omitted; the letterpress has in places been rearranged, and several additions have been made; one or two mistakes have been corrected. To many of the illustrations arrows have been added, pointing to the areas of abnormality and disease; this should be of distinct use to those without expert knowledge of radiographs. With the exception of these slight alterations the second edition is practically identical with the first.

The book is a good introduction to the subject of the interpretation of radiographs, and covers almost the whole field of *x*-ray usefulness in the demonstration of abnormalities brought about by disease, etc. At the same time the illustrations are not very satisfying; many of them leave much to be desired. No doubt, to some extent, this is due to the loss of detail in the process of reproduction, but when all allowance is made for this, there remain many which are inadequate. It is better not to attempt illustration of any point or points unless the abnormalities described are clearly shown. Further, some of the descriptions of the *x*-ray changes produced by disease are so much compressed as to be almost inaccurate; notably is this the case in the short note upon Köhler's disease of the scaphoid and that on osteochondritis deformans. However, as a whole the book will be useful to the general practitioner and also to the student who wishes to obtain an elementary knowledge of *x*-ray diagnosis.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

IN the new edition of his well known *Textbook of Medical Jurisprudence and Toxicology*[4] Professor GLAISTER has included additions relating to industrial and other poisonings, the lunacy law, and the relationship of intoxication to responsibility for crime. The book is now entitled to a place in the front rank of works on medical jurisprudence, and forms a valuable work of reference for both medical and legal purposes. It is clearly and concisely written, and contains numerous excellent illustrations.

Professor Glaister has devoted more space to certain subjects than is usual in books on medical jurisprudence. We are unaware, for example, of any other medical work in which the method of identification by means of finger-prints is so fully and clearly described. When dealing with the question of inebriety and responsibility for crime he gives a full account of the recent important case of Rex *v.* Beard, which was heard in November, 1919. The prisoner was convicted at the assizes of the murder of a child of 15 by suffocating her in his attempts to prevent her screaming whilst he was raping her, and was sentenced to death. On appeal the Court of Criminal Appeal quashed the conviction for murder and found instead a verdict of manslaughter. The case was then referred to the House of Lords, which reversed the decision of the Court of Appeal and upheld the original verdict of murder. The House of Lords held that there was no doubt that the man was not too drunk to form the intention of committing the crime of rape, and he could not therefore be regarded as not responsible for the further act of violence which caused death, and was a consequence of the initial crime. Professor Glaister regards it as now definitely established that irresponsibility on the grounds of inebriety can only be successfully pleaded when the prisoner was so drunk as to be in what amounts to a state of insanity at the time he committed the crime.

The law relating to lunacy is very fully and clearly stated. We note, however, that the author has not followed the usual practice of writers of textbooks on medical jurisprudence in giving an account of the different forms of insanity, and the characteristics of each form most likely to possess medico-legal significance. He merely refers the reader to textbooks on the subject. This is, perhaps, somewhat to be regretted. It could not, of course, be expected that the author should give a detailed account of all the psychoses, but every branch of medical jurisprudence necessarily draws material from clinical medicine, and a description in medico-legal textbooks of special features of the various psychoses, such as suicidal or homicidal tendencies, is not less desirable than, for instance, the inclusion of the signs of abortion when dealing with the medico-legal aspects of birth. The information is of the more importance as most books on medical jurisprudence are seriously out of date in their accounts of the psychoses. Even Professor Glaister, when referring to the classification of the psychoses, still adopts that given by the International Congress of Alienists in 1867. We note that here and there the author is not quite up to date, particularly when dealing with statistics. For example, he does not give the returns for industrial lead poisoning for dates later than the year 1902. The Poisons Schedule which he quotes does not contain the most recent additions and alterations. We do not understand the statement under the heading of carbolic acid: "The English Registrar-General gives in his report for 1918 for the first time in several years a detailed list of poisons causing deaths." There has been no interruption in the practice of the Registrar-General in tabulating the poisons responsible for accidental, suicidal, and homicidal deaths. These points, however, are not very important, and Professor Glaister is to be congratulated upon having produced a work which must be regarded as one of the standard textbooks on medical jurisprudence.

THE MAYO CLINIC.

THE ninth volume of *Collected Papers of the Mayo Clinic* (Rochester, Minnesota)[5] contains a hundred and ten articles, nearly all of which have been previously published; they are arranged under the nine headings of the alimentary canal, urogenital organs, heart, blood, skin and syphilis, the head, trunk and extremities, nerves, technique, and general. The wide scope of the clinic's activities, and the wealth of material that has been so fully utilized cannot but impress the reader with admiration for this unique organization. As is to be expected, the great majority of the articles deal with surgical practice or pathology, but pure medicine has been well represented in the clinic, and evidence of this is forthcoming in a number of papers; thus Willius discusses the expectancy of life in auricular fibrillation in an article based on 500 cases examined electrocardiographically during four and a half years at the clinic, and concludes that the mortality attending auricular fibrillation is double and in some groups treble that occurring in similar types of heart disease uncomplicated by this arrhythmia. The same worker writes on changes in form of the initial ventricular complex in isolated derivations of the human electrocardiogram. The diagnostic methods in the anaemias are discussed by A. H. Sanford; Winifred Ashby finds that transfused blood corpuscles survive for thirty days or more; and Rosenow contributes several papers, of which three are on aspects of influenza and pneumonia. There are two papers on thyroxin; and in the report on tetany in a eunuchoid Woltman adds a well-written summary of tetany and of its relation to pluriglandular insufficiency. It is obviously impossible even to name the most interesting papers here brought together, but a few examples may be mentioned: Broders analyses 537 cases of squamous-celled epithelioma of the lip, 98 per cent. being in males, and 95 per cent. on the lower lip; he also gives an account of benign xanthoid extraperiosteal tumours, which include those of the tendon sheaths formerly called myelomas, containing foreign body giant cells; from examination of 17 cases at the Mayo Clinic it appears that the tumours

[3] *Roentgen Interpretation* A Manual for Students and Practitioners. By G. W. Holmes, M.D., and H. E. Ruggles, M.D. Second edition. London: Henry Kimpton. 1921. (Med. 8vo, pp. 223; 184 figures. 18s. net.)

[4] *A Textbook of Medical Jurisprudence and Toxicology.* By John Glaister, M.D., D.P.H.Camb., F.R.S.E. Fourth edition. Edinburgh: E. and S. Livingstone. 1921. (Demy 8vo, pp. 917; 137 figures. 30s. net.)

[5] *Collected Papers of the Mayo Clinic, Rochester, Minnesota.* Edited by Mrs. M. H. Mellish. Vol. ix, 1919. Philadelphia and London: W. B. Saunders Co. 1920. (Roy. 8vo, pp. 1331; 490 figures, 3 plates. 60s. net.)

are granulomas derived from extravasated blood, and that there is a history of injury in 35 per cent. of the 75 collected cases. A suggestive paper on a mathematical terminology for neoplasia and its significance, by W. C. MacCarty, deserves attention, and there are several articles on the surgery of the stomach, and addresses by L. B. Wilson and by the stimulating heads of this famous school, W. J. and Charles Mayo.

THE ISLANDERS OF THE PACIFIC.

IN *The Islanders of the Pacific, or the Children of the Sun*, Lieut.-Colonel T. R. ST. JOHNSTON,[6] now Governor of the Falkland Islands, but previously for ten years in the Lau Islands, Fiji, where he was District Commissioner, deals in an interesting manner with the origin and ethnology of the natives of the Pacific. As a medical man—and, like some colonial officials of high rank, he was originally in the medical service of the Colonial Office—he has always taken an interest in anthropology. Accordingly, he has devoted much time and thought to a study of the mythology, traditions, and customs of the inhabitants of the Pacific Islands, with the object of throwing further light on their origin.

The sun-myths are considered in some detail; sun-worship and fire-worship are obviously connected, the followers of the fire cult having merely specialized in a variety of sun-worship. It is suggested that "the halo" as an emblem of divinity was borrowed, like so many other ideas in the early Christian Church, from a pre-Christian sun-worship. There are at least three main types among the inhabitants of the Pacific Islands: (1) The Negrito, the aboriginal, probably dating from untold aeons, but now rarely seen, of much the same type as the Andaman islanders; (2) the Melanesian, generally with a dolichocephalic head, quick and furtive in his movements, sulky according to European ideas, but a good worker under supervision; and (3) the Polynesian, which fairly certainly migrated into the Pacific 2,000 years ago, brachycephalic with evidence of remote Mongolian ancestry, handsome even according to European standards, with light-coloured skin, and the bearing of a race of chiefs. Though at first influenced by the general belief that any traces of sun-cult possessed by the Melanesians were received from the later Polynesian immigrants, Lieut.-Colonel St. Johnston is now convinced that both these races were formerly sun-worshippers, even if with different rites. He puts in a strong plea for the natives, who if given a chance will increase instead of diminishing, and become an asset to the Empire; he urges that, as the Polynesians and the Europeans had in the remote ages a common ancestry, dating from the time of sun-worship in England, a mixture of Polynesian and European blood should produce a better stamp of man than a mixture of the white man and the African negro or of the white man and the Chinese. He is now engaged on a history of British influence in the Pacific, a companion volume to the present well-got-up and beautifully illustrated work.

NOTES ON BOOKS.

ELLIOT'S *Lectures on Tropical Ophthalmology*[7] contains, we gather, the substance of lectures delivered at the London School of Tropical Medicine, and of an article the author has prepared for Byam and Archibald's *Practice of Medicine in the Tropics*, a work which we understand is in the press but not yet published. In the preface Colonel Elliot states that this small volume has formed the skeleton on which he built his work on *Tropical Ophthalmology*, which was published last year and was noticed at some length in the BRITISH MEDICAL JOURNAL of October 2nd, 1920 (p. 516). Students and practitioners who have passed through the course at the London and other schools of tropical medicine will, we think, be glad to have this handy reminder of the chief facts about eye diseases in the tropics. An amusing misprint occurs on page 24—diffulent for diffluent; one or two names are misspelt—Crooke's for Crookes's, and Streatfield for Streatfeild. The late Mr. Streatfeild, who was ophthalmic surgeon to University College Hospital, used to explain the peculiarity in the spelling of his name by the humorous assertion that the family was founded long before squires were taught to spell. The book is well written, and brought out in the creditable manner that we associate with the Oxford Medical Publications.

[6] *The Islanders of the Pacific, or the Children of the Sun.* By Lieut.-Colonel T. R. St. Johnston, late District Commissioner of the Lau Islands, Fiji. London: T. Fisher Unwin, Ltd. 1921. (Med. 8vo, pp. 302; maps and illustrations. 25s. net.)

[7] *Lectures on Tropical Ophthalmology.* By R. H. Elliot, M.D., Sc.D., F.R.C.S. London: Henry Frowde, and Hodder and Stoughton. 1920. (Med. 8vo, pp. 36; 13 figures. 3s. 6d. net.)

EPSOM COLLEGE.

THE annual meeting of the governors of Epsom College was held at 49, Bedford Square, London, on June 24th, Sir HENRY MORRIS, treasurer, presiding. The names of successful candidates for foundation scholarships were announced as follows: Frederick J. Brice, David Joy, John L. Newton, Philip M. Lawson, Spenser G. F. Penny, Eric R. Bent, and James D. Shoolbread. The successful candidates for the Pugh, Christie, and Sir Thomas Smith pensionerships were respectively Margaret Bromilaw, Peter W. McGregor, and Celeste S. M. Orme. It was stated that the present number of Epsom College boys was 316, including 47 foundation scholars at Epsom and one at another school, 6 Council exhibitioners, 243 other boarders, and 19 day boys.

Sir HENRY MORRIS, in moving the adoption of the sixty-eighth annual report, referred with regret to the death of Sir Frederick Taylor, one of the earliest pupils of the school, who afterwards in various positions rendered it great service; also to the resignation of Sir William Church from the chairmanship of the council. Owing to the great increase in expenditure the year ended with a deficit of £5,518; the year 1919 ended with a deficit of £3,700. He did not anticipate a recurrence of these deficits, however, because the full advantage of the increased school fees, which came into operation in September last, in time only to affect one term of 1920, would now be felt. The salaries of the masters had been settled by the council before the report of the Burnham Commission on the salary scale of assistant masters in secondary schools was published, and he did not think it was incumbent on the College either to copy or follow the Burnham scale. The new scale at Epsom, he believed, was in some respects more beneficial to the masters. Pensions also had been increased under a new scheme. The previous scheme, which had been in operation for seventeen years, provided only for a maximum of £100 a year, and was contributory, whereas the new scheme provided for £200 a year, and was on a non-contributory basis. Arrangements had been made whereby contributors to the earlier scheme could transfer without detriment, and it had also been made possible to give some gratuity to masters who left the College before they became entitled to receive the pension. Sir Henry added that an analysis of the nationalities of the doctors whose sons applied for foundation scholarships showed that out of twenty-four candidates this year, thirteen were the sons of men with a Scottish qualification, nine with an English, and two with an Irish. The qualifications of the fathers of the seven successful candidates were Scottish in three cases, English in three, and Irish in one.

Dr. G. E. HASLIP asked for the number of subscribers to Epsom College among medical men, and was informed that it was between 3,000 and 3,500. He went on to criticize certain points in the balance sheet, and then urged that the time had come for the amalgamation of the College with the Royal Medical Benevolent Fund. That Fund had fewer than 2,500 subscribers, and if Epsom had 3,500, the combined figures (even making no allowance for medical men who were subscribers to both) revealed a condition of affairs not creditable to the medical profession, which ought to support these charities more heartily, and might do so if effort was concentrated upon one fund kept well to the fore.

Sir HENRY MORRIS replied that he did not believe that amalgamation would add to the number of subscribing members of the profession. It was regrettable that so small a minority of men supported this work, and he had had experience of even obstinate resistance on the part of a number who might subscribe handsomely. One objection to amalgamation was that while the Royal Medical Benevolent Fund was wholly a charity, Epsom College was only in part a charity. It was educating the sons of a large number of medical men who could not afford the high fees of some other public schools, and these scholars might encounter some disagreeable reminders from outsiders if it were suggested that Epsom College was wholly a charitable foundation.

The report was adopted, and the retiring members of Council and auditors were re-elected. A vote of thanks to Sir Henry Morris for his services as treasurer was carried, on the instance of Sir WILLIAM CHURCH, who also thanked the Council for the kindness it had shown him during the years of his chairmanship.

THE ROYAL SANITARY INSTITUTE CONGRESS.

THE thirty-second Congress of the Royal Sanitary Institute was held at Folkestone from June 20th to June 25th. It met in five sections and seven conferences, and considered sixty papers bearing on subjects ranging from personal and domestic hygiene to matters of special interest to municipal engineers and surveyors and sanitary and veterinary inspectors. The Earl of Radnor's presidential address was a strong plea for a retention of the voluntary system in health services. He instanced nursing associations and voluntary hospitals: to give up the voluntary principle in these two great services and transfer the burden to public authorities would probably double the expenditure while diminishing the efficiency. People had faith in voluntary agencies, and faith was of vital importance in all matters relating to health.

Hospitals.

The future of the hospital was the subject of discussion in the Section of Sanitary Science and Preventive Medicine, over which Sir LESLIE MACKENZIE presided. Dr. W. J. TYSON (Folkestone) reviewed various methods, contributory and other, by which additional funds for hospitals might be obtained, so that not only the poor but the lower middle class, whose incomes would not stand the strain of consultation and operation and nursing home fees, might enjoy the best modern institutional treatment. His hope was that the Insurance Act might be so amended as to empower approved societies to make periodical contributions to hospitals for the benefit of their members. He reminded the section that the annual income under the Insurance Act amounted to upwards of 26 millions, while the annual expenditure absorbed only 17 millions, leaving a generous margin, and if the approved societies should decide to assist hospitals by direct contributions they would be carrying out the spirit of national insurance.

Mr. E. L. MARTIN LOBB (West Kent General Hospital) dealt with the hospital as a health centre from the point of view of the general practitioner. He maintained that better organization would relieve much of the pressure of crowded premises and lengthy waiting lists. It was time that a sort of Domesday Book of the convalescent accommodation of the country were compiled, so that to every hospital, according to its size, a fraction of the available convalescent bed accommodation could be assured. He hoped also that a sliding scale of payment by hospital patients might be established in a day not distant. Dr. J. MIDDLETON MARTIN described the Gloucestershire scheme for the extension of medical services. The first ten of fifty-two out-stations, he said, had just been opened, and when in due course the whole of them were in operation there would be on the average one out-station within three miles of every part of the county. The services provided by the scheme included treatment, mainly out-patient, in connexion with the defects of school children, tuberculosis, venereal diseases, maternity and child welfare, and the care of ex-service men. Others who took part in the discussion were Dr. C. PONDER (assistant county medical officer for Kent), who spoke from the standpoint of the county health officer, and Dr. WHEATLEY (medical officer of health for Shropshire), who looked forward to a district nursing service trained in public health as a means of relieving hospital congestion by making it possible to treat at home a large number of cases which now came under institutional care. The view that the hospitals should receive more financial help from the approved societies found expression again in the general discussion.

The question of hospitals arose in another section, when not their administration but their construction was considered. Mr. EDWIN T. HALL, F.R.I.B.A., advocated wards on the pavilion system, separated by open spaces for wind currents and sunlight, and thought that if this plan were followed little attention need be paid to hard-and-fast rules regarding the number of beds per acre, as there were no data to justify the arbitrary figures laid down from time to time.

Maternity and Child Welfare and School Medicine.

A section was devoted to maternity and child welfare, under the presidency of Mrs. H. A. L. FISHER, wife of the Minister of Education. Dr. VYNNE BORLAND (Willesden) discussed the relation between overfeeding and wasting in children, and maintained that cases did occur in which wasting was caused by overfeeding, oftener, of course, in the case of hand-fed than of breast-fed babies. The tendency among the poorer classes to swathe the children in all sorts of garments which prevented the dissipation of energy necessary to maintain an undisturbed metabolic balance was also deplored. Dr. HAROLD SCURFIELD (Sheffield) urged as a definite aim in child welfare work, "No rickets, good teeth, and nose breathing." To prevent rickets, the diet of expectant and nursing mothers must contain the antirachitic vitamin; the infants should be breast-fed, and after weaning should get their supply of antirachitic vitamin in a form suited to their age. To secure good teeth there must also be such food for the weaned child as would make it chew, and, in order that the jaws might develop in the right way, nose-breathing must be cultivated; this last was the weakest spot in the advice given at welfare centres. Dr. A. WELLESLEY HARRIS (Lewisham) suggested certain legislative reforms which were needed in the interests of child life. These included the transference of responsibility for registration, inspection, and control of foster homes from Poor Law guardians to public health authorities, and the prohibition of total surrender of infants for fixed sums of money without proper safeguards. Boarding schools under private ownership and run for gain should be registered and inspected by the public health authorities, as also private day schools, many of which were ordinary dwelling houses, in many respects unsuitable for the education of the growing child. Dr. G. A. AUDEN (Birmingham) dealt with the backward scholar. He deprecated the haphazard formation of backward classes unless they were associated with an organized system of mental testing whereby the needs of the individual child might be gauged periodically.

Industrial Hygiene.

Various aspects of industrial hygiene occupied much of the time of the Congress. The section specially devoted to this subject was presided over by Lord BURNHAM, who said that in the Victorian era it would have been considered an interference with divine providence as well as with individual liberty to have attempted anything in the direction of industrial hygiene. At the same time, it was possible that we were going too far in the other direction, and certainly it was necessary to have safeguards to prevent the national character from being enervated by too much supervision. The spirit of co-partnership rather than of paternalism was wanted, otherwise welfare work of all kinds would encounter indifference if not hostility among those it was intended to benefit.

Sir LESLIE MACKENZIE, in his presidential address in another section, also touched upon this subject. The special investigation of industrial fatigue made during the war showed that the hours of labour, the types of food, the character of the work, and the general conditions of the factory were reflected in increased or diminished output. The drift of the last thirty years had been away from the study of environment to the study of individuals, and in medicine generally the drift had been away from the study of the end-products called disease to the incipient physiological deviations that need never become pathological. He had the hope that in the years immediately ahead, by the organization of the whole forces of research and treatment, the general public might have the benefit of the highest medical skill informed by the latest medical science.

Following on a paper on the organization of welfare schemes by Mr. ROBERT HYDE, Director of the Industrial Welfare Society, Sir ARTHUR NEWSHOLME said that in the United States very little was done with regard to factory hygiene from the Government side. The movement was a voluntary one on the part of the great industrial concerns, who realized how greatly they depended upon the health and well-being of the worker. Mr. D. R. WILSON, the Secretary of the Industrial Fatigue Research Board, contributed to the section a summary of the main work of the Board on the effects of environment upon output. The novelty of the work was not in the discovery that such conditions as temperature, humidity, and lighting affected output, for that was previously acknowledged, but in the

giving of numerical values to the several effects. It had been found that in heavy work, involving exposure to high temperatures, the production had a consistent seasonal variation, and was with few exceptions greater in winter than in summer. Some relation between air humidity and output had also been established along one line of production, that of the rolling process in tin-plate manufacture; while as for lighting, it had been estimated by one of the reporters to the Board that even good artificial light caused a reduction of 10 per cent. in output as compared with daylight. Dr. LECHMERE ANDERSON (Doncaster) again urged the benefits of a fixed refraction test for coal miners, with the object of diminishing the incidence of nystagmus (on the line of his paper in the BRITISH MEDICAL JOURNAL of November 27th, 1920, p. 813), and on his proposition the section passed a resolution urging the Home Office to fix such a standard.

The discussion on the prevention of smoke pollution, although it took place in another section, may be conveniently noticed under this heading. It was opened by Professor LEONARD HILL, who urged the advantages of the modern radiant gas fire, and thought that the coal crisis might be a blessing in disguise if it forced the nation to use gas, coke, and smokeless fuel in place of raw coal, and thus clean the sky and conserve the national coal stores. Dr. J. S. OWENS, superintendent of the Advisory Committee on Atmospheric Pollution, accused the domestic coal fire rather than the factory fire of being the chief cause of atmospheric impurities. He had calculated that the domestic fires of London during the hours from 6 a.m. to 9 a.m. produced over 200 tons of soot, and this was quite enough to create one of the densest of London fogs if the atmospheric conditions prevented its removal.

The Economics of Public Health.

A conference of representatives of sanitary authorities was held under the presidency of the Mayor of Folkestone (Mr. R. G. WOOD), who, in his address from the chair, urged that, in the interests of national reconstruction, the laws relating to public health should be codified. To bring under one head all the enactments and orders relating to public health would be, he said, the natural sequence to the formation of the Ministry of Health, and the powers which certain cities and boroughs had obtained by private Acts should be, as far as they were beneficial, applied equally to the whole country in one consolidated Public Health Act.

Dr. W. ALLEN DALEY (Blackburn) entered upon an analytical review of the costs and results of various public health activities. He had asked medical officers of health of county boroughs to send him particulars of the expenditure of their departments during the last financial year, and side by side with these he gave, as far as was possible in figures, the values of the various services in the prevention of sickness or the postponement of death which were carried out by well organized public departments in our great towns.

	Expenditure in every £100 on Health Work.	Results in 1,000 Points of Total Value.
	£	
Measures against infectious diseases, mostly hospital maintenance	26	220
Antituberculosis work	30	85
Maternity and child welfare	13	250
Venereal diseases	5	80
School medical service	9	200
Food control, and general sanitation, propaganda, and administration	17	165

The deduction was that too much was being spent on work against acute infectious diseases and antituberculosis work, and not enough on maternity and child welfare, on venereal services, and on school medical work. Dr. J. MIDDLETON MARTIN thought that the time had come when a comparison should be drawn between the value of the services of the health department and that of the services of other departments of local bodies. Much money was spent on roads and buildings, which the public could see, instead of on things which they could not see, but which would be more greatly to their advantage. Dr. NAYLOR BARLOW (Wallasey) protested against the inadequacy of Poor Law and other relief, especially in the case of widows and women with families deserted by their husbands. The relief should be adequate to provide the families with food and clothing when the mothers, owing to the ages of the children, could not go out to earn money to provide for them.

Diphtheria Carriers: Tuberculosis: Milk Supply.

A conference of medical officers of health was presided over by Dr. J. WRIGHT MASON (Hull), who said that during the past half-century the increase of pathological knowledge, including knowledge of infection, had been the outstanding feature of medical progress. It was now understood that the problem of the human carrier of bacterial infection was one of ever-increasing importance, and one which must be dealt with seriously in the near future. He mentioned that the Scottish Board of Health had issued an order to the local authorities under its jurisdiction empowering them to deal with a person adjudged to be a carrier of infectious disease germs in the same manner as if he were suffering from the disease. Dr. F. C. LINTON (Tunbridge Wells) entered into the question of the measures necessary for dealing with diphtheria carriers. In the case of carriers in whom no history of a prior attack of diphtheria was obtainable it was his practice to isolate them as quickly as possible, generally by removal to hospital. Some medical officers of health might deem it an inadvisable expense to remove to hospital a carrier who might be harmless and clear up quickly, but unless the home arrangements were unusually satisfactory there was no feeling of safety in leaving a carrier outside hospital. In no case had he left at home a carrier of this class of over four weeks' persistence after discovery, and in only one instance had he met with serious difficulty in persuading the carrier to go into hospital. Dr. Linton detailed special measures taken in the case of carriers who had suffered or were suffering from an attack of diphtheria, generally in a site other than the fauces. As for the persistent carrier and his treatment, vaccines might offer the most promising solution, though his own experiments along this line did not appear to be very encouraging.

A statistical study of tuberculosis in Ipswich was submitted to the conference by Dr. A. M. N. PRINGLE. It was based on an examination of the records of deaths in that town from 1841 onwards. The figures showed a fall in the tuberculosis death rate, particularly amongst females. From 1841 to 1860 the death rate of tuberculosis was identical in both sexes; during the next ten years the male death rate remained stationary, but the female dropped 10 per cent. Thereafter the male death rate also dropped, but remained somewhat behind the female. From 1841 to 1850 the death rate in Ipswich from tuberculosis for both sexes was 4.3; from 1911 to 1920 it was approximately 1.7 for males and 1.3 for females.

The question of milk supply figured largely in this congress. Dr. S. G. MOORE (Huddersfield) described the action taken by the municipality of New York. In September, 1920, New York City took over the laboratories and dépôts which had been established and maintained for many years by the Hon. Nathan Straus, and these were now being conducted as municipal undertakings. For five years there had been a law in New York providing that only two kinds of milk might be sold for public consumption—namely, pasteurized milk and Grade I certified milk. In 95 per cent. of the cities of the United States, with populations above 100,000, pasteurization was enjoined though not enforced. If the enactments which had been found practicable in New York, and also in Chicago, were taken into careful consideration by the authorities on this side of the Atlantic, it was not too much to hope that at the end of twelve or eighteen months one of the greatest advances in public sanitation would be achieved. Dr. C. E. GODDARD (Harrow) pleaded for a more vigorous supervision of the cowshed, and gave some advice to sanitary officers on ways of enforcing a higher standard of farm sanitation. Colonel R. J. BLACKHAM described the milk problem in hot climates, and spoke highly of dried milk as a substitute. Dr. H. SCURFIELD strongly urged that the sale of so-called custard and pudding powders, as well as invalid wines, under misleading titles should be prohibited. Certain powders analyzed by the Sheffield public analyst in no way represented the food value of eggs; the amount of fat and protein was very small, and the title "egg substitute" or "egg powder" was a misnomer. He desired the Council of the Sanitary Institute to take action in the matter.

The Congress closed its proceedings at a final meeting in the Town Hall, when Professor H. R. KENWOOD, the chairman of the Council, said that on all sides he had heard that the meeting had been most successful.

A CONGRESS of hygiene and microbiology will be held at Monte Video in October, simultaneously with the Pan-American Congress of Dermatology.

British Medical Journal.

SATURDAY, JULY 2ND, 1921.

PROFESSIONAL SECRECY.

IT was inevitable that the observations of Mr. Justice Horridge in the Divorce Court, to which we drew attention in our issue of June 18th, should cause a good deal of uneasiness. It will be remembered that a medical witness, Dr. Elliott of Chester, asked the judge to exempt him from giving evidence with regard to venereal disease, on the ground that he, with other medical men, had undertaken duties at a clinic on the distinct understanding that professional secrecy as to what happened there would be observed; he also called attention to the regulation made under the Act in this respect. The judge rather went out of his way to reaffirm in its crudest form the claim of courts of law to compel the disclosure of professional confidences. He denied that the regulations made by a Ministry under an Act of Parliament had any force affecting the jurisdiction of the courts. He put what seems to us to be an erroneous interpretation upon the regulation, and he refused to hear counsel, who was prepared to argue the point. He rather ostentatiously withdrew his sympathy from the medical witness in the case, and declined to look at the matter from the point of view of public policy. The matter was discussed at the meeting of the Council of the British Medical Association on June 23rd, when the following resolution was unanimously adopted: "That the Council of the British Medical Association has learnt with great concern of the position created by the recent decision of a judge that the medical officer of a venereal disease clinic must give evidence in a civil case as to the medical condition of a patient under his care at a venereal diseases clinic, thus violating the confidence between doctor and patient and the direct undertaking given by the Local Government Board that all proceedings at such clinics should be absolutely secret and confidential. In drawing the attention of the Ministry of Health to these facts the Council of the Association would urge that such legislative steps should be taken as would render such an occurrence impossible in the future." In sending the resolution the Council also asked the Minister to receive a deputation to discuss the whole question.

In a case heard before Lord Mersey on May 31st a similar point was raised, also in the Divorce Court. The medical officer of health of Ilford had been subpoenaed to produce a card containing particulars with regard to the notification of a stillbirth; the notification showed that the name of the father, who had notified the birth, differed from that of the mother. A firm of solicitors approached the medical officer of health, who declined to state whether or not he had such a card in his possession or whether such a stillbirth had been notified to him, and referred the solicitors to the Ilford Council. The solicitors then applied to the council, and the Public Health Committee declined to give any information, stating that they viewed with apprehension any departure from the usual practice of treating such notifications as confidential and considered such a course to be against public policy. The medical officer of health, who attended on a subpoena, stated before giving evidence that he was instructed by the committee to ask the judge's ruling, pointing out that hitherto notifications under the Public Health Acts and the Births Act had always been treated as confidential; that so far as was known this was the first time a medical officer of health had been subpoenaed to produce documents of the kind; that stillbirths were only reported to the medical officer of health for public health reasons, and that the Acts had been working harmoniously because the notifications had been treated as confidential. Lord Mersey said that he saw no reason why the notification card should not be produced; that there was no statement in the Acts to the effect that the information was confidential, and that he did not consider the production of the card would be against public policy.

We make no doubt that the action of the courts in these two cases is engaging the attention of the Ministry of Health, which is well acquainted with the reasons of public policy that render it proper that the confidence of the individual should be protected as fully as possible when he or she seeks medical advice and treatment. We know, indeed, that as long ago as June, 1920, the Minister of Health submitted the general question as to the position, in law, of medical secrecy to the Lord Chancellor in connexion with the confidential entries on medical history cards under the National Insurance Act. In giving this information to Dr. Fremantle, on February 23rd, Dr. Addison added that the Ministry recognized that very important issues were raised, and in reply to a further question made a definite statement on one point; he was asked whether a subpoena might not be granted compelling the production of a medical history card, and whether the practitioner concerned in the preparation of the card might not be called upon to support the statement therein contained; his answer was that he was advised that though a person might be compelled by means of a subpoena duces tecum to bring any document, private or otherwise, to the court, the document itself did not thereby become admissible in evidence. He was further advised that a record card was not evidence of the facts stated in it, and that if it was desired to prove them this must be done in the ordinary way—namely, by the oral evidence of the doctor himself. To the non-legal mind it rather seems that Lord Mersey has taken the matter further, inasmuch as he compelled the medical officer of health in the case above mentioned to produce the card and to give information which could only have been obtained from the card.

The medical profession has always viewed with anxiety the claim of the law courts and sometimes of the legislature to compel it to violate a great professional principle in order to get over some administrative difficulty. In this attitude it has usually had the support of public opinion and sometimes of jurists. The French Code, for example, makes it an offence punishable by imprisonment and fine for physicians, surgeons, and other officers of the health services to reveal secrets confided to them in the course of their professional duties, save in the case where the law requires them to make notification (à se porter dénonciateurs). One clause of the Hippocratic oath is thus translated: "Whatever, in connexion with my professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret." We are not sufficiently informed as to the law in the United States of America, but it is to be gathered from a recent decision of the District Court of Appeal of California that in that State, if not in others, a physician or surgeon cannot, without the

consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient.

When we find an identical opinion expressed by the Father of Medicine and by the jurists who drew up the French Code, we are justified in asking whether the English courts are so unquestionably in the right as the tone and substance of the remarks of the judges would seem to imply. At the same time it has to be recognized that the claim as stated by Hippocrates, and the penal enactment of the French law both recognize that exceptions may be necessary; recently the Académie de Médecine, in making recommendations as to the amendment of the law with regard to public health administration in France, advised that it should be made compulsory for the doctor in attendance as well as for the householder to notify cases of infectious disease. It is understood, however, that this relaxation of the law is likely to be opposed by French jurists.

A NEW STUDY OF APHASIA.

III.

IN two previous articles the problems of speech and its disorders have been considered in the light of new work on the part played by the cortex in sensation, and some of the results of Head's investigations have been set out. At an early stage he realized that the old clinical tests for examining aphasic patients were unsatisfactory. It is not sufficient to hold up some object and ask the patient to name it; at one time he may be able to do so, at another he fails. Inconstant responses do not justify any conclusions. The patient must be subjected to a series of tests in which the same task occurs on several occasions and is put before him in different ways.

In his Linacre lecture for 1920 Head describes the methods of examination and the nature of the tests employed. He reminds us at the outset that "an inconstant response is one of the most striking results produced by a lesion of the cerebral cortex," an observation which disturbs the confidence with which we used to embark upon cerebral localization in disease. During his studies in sensation he found that a stimulus exerting a constant physical force well above the normal threshold was sometimes appreciated, but at others evoked no response. Increase of intensity did not necessarily lead to an equivalent improvement in the answers given by the patient. There was a characteristic want of certainty in the reaction to measured stimuli, which was observed equally clearly in disorders of speech due to cerebral injury. Head's tests are so devised that inconstancy of response may be revealed. There are certain general rules essential to the success of the tests. The patient must be examined alone, in a quiet room. When the patient understands the task set him, each series of tests must be carried out in silence. It is important to record not only what the patient says or does, but also every remark or question of the observer, for these remarks on either side may throw light on the ideas or feelings of the patient and his difficulties with regard to the task. Fatigue on either side must be avoided. Much in the character of the patient's answers depends on his previous aptitudes, which may be entirely unknown. The precise details of the tests, which are too long to quote in full, are given in the Linacre lecture.

Head's observations show that disorders in the use of language due to a unilateral lesion of the brain cannot be classified as isolated affections of speaking, reading, or writing. They cannot be due to destruction of images, visual, auditory, or motor. Word-blindness, mind-blindness, and Jackson's "imperception" are all associated with more or less disturbance of the power to form images. Careful examination of cases of so-called "motor aphasia" shows that not only external speech but certain aspects of internal verbalization are affected. The remarkable fact was elicited that in this group are found patients who can neither imitate correctly movements made by the observer sitting face to face, nor carry out the same movements to pictorial command, but who may yet be able to execute such movements perfectly when reflected in a mirror. In the first case some formulation in words is required, whilst in its second form the test is verbally an act of uncomplicated imitation.

Head's tests reveal not only defects in the power of using words and figures in speaking, reading, and writing, but inability to execute other tasks with certainty and precision. Any act may suffer which requires for its perfect performance the antecedent formulation of the ultimate intention or goal to which it is directed. Thus the patient may be unable to draw a plan of the relative position of objects with which he is familiar, although he can indicate the site of each one of them individually. He mistakes the significance of the two hands of the clock, and fails to recognize the proportionate value of the space between the figures of the hours. He can draw from a model, but may be unable to reproduce the figure of an elephant to command. He fails to comprehend the full significance of a picture, though he recognizes the details of which it is composed. The closer a symbolic action corresponds to mere matching of two sensory patterns the less likely is it to be affected by these disorders of language, while the nearer it approximates to a proposition the greater difficulty will it present. Under the influence of lesions situated in various parts of the brain the several functions comprised under "symbolic thinking and expression" may become dissociated; this is analogous to the effects produced on sensation by injuries to the cerebral cortex.

Head suggests that the following varieties or classes of dissociated forms of symbolic thinking and expression can be distinguished, although he does not claim that there are no others. In (*a*) defective word-formation or "verbal aphasia," words are evoked and enunciated with difficulty, and the vocabulary is restricted; writing shows the same errors as articulate speech and spelling is defective. Words are few, badly pronounced, but applied correctly. Commands given in spoken or printed words may be correctly executed unless the evocation of some word or phrase is required for execution. But these patients know whether they have performed their task correctly or not. Reading to themselves is difficult because of inability to retain in memory long series of words. The significance of numerals is understood even though they may be miscalled. These patients can draw, play card games, and enjoy jokes in print and pictures. In a second class, (*b*) "nominal aphasia," characterized by defective use of names and want of comprehension of the nominal value of words or other symbols, enunciation may be almost normal, but there is difficulty in "naming." Repetition *viva voce* is perfect provided nothing further depends on the act; but reading is difficult, especially if the words are spelt out. Writing is gravely affected, and the patient may be unable to copy print into cursive handwriting. Writing to dictation and all actions demanding choice are performed with difficulty to spoken commands. Counting is possible

to a variable extent, but the significance of numbers, the power to carry out simple arithmetical operations or to appreciate the relative value of money are affected. The power to draw a plan of a familiar room is defective, although the position of objects named by the observer may be correctly indicated in a blank plan. These patients cannot play cards, but chess and draughts may be possible. A third variety—(*c*) defective phrase formation, "syntactical aphasia"—is easily recognized because the patient talks jargon. The grammar, balance, and rhythm of the sentence are disordered, as well as the balance of articulation of single words. Such patients can read if they are not compelled to reproduce the meaning in words. Writing is less affected than external speech, but it may be disturbed by verbal jargon. For the next variety—(*d*) defective recognition of the full significance of words and phrases—Head has invented the expression "semantic aphasia." The word "semantic" has the disadvantage of being new to the language. It is used in the sense of the ultimate meaning of words, which patients with this defect fail properly to comprehend. They do not grasp the final aim or goal of an action imposed on them from without. They cannot formulate symbolically a general conception, although they can enumerate the details of which it is composed. These patients can read and write, but the result tends to be inaccurate and confused. Counting is possible and the value of numerals can be recognized, but appreciation of the nature of an arithmetical process is defective. The patients cannot play games, and jokes set out in print or pictures are rarely apprehended in their full significance.

It may be asked, What is the practical bearing of these new views of aphasia? Head admits at once that they are of no immediate practical value to the physician. They may best be considered as researches into experimental psychology, and form, as he says, a fascinating example of the interaction of mind and body. They point to the error of regarding certain forms of dissociation of the processes which underlie speech as revealing an elementary basis for the acts of speaking, reading and writing. "Speech," as Head said in his reply at the discussion on aphasia that followed his Hughlings Jackson lecture, "demands the integration of a number of other functions before it can be carried out, and in this way resembles sensation"; either can be upset by lesions of the brain, but the whole act need not be destroyed, it may be destroyed in part only. Head contends that to attempt to localize the position of an unknown function on the surface of the brain is useless. It is advisable to determine first what function is disturbed before putting forward views as to what lesion has produced it. There can be little question that this is indeed the method to be pursued. Teachers of medicine may regret having to abandon "an easy dogmatism at the bedside," and examiners may still judge the merits of candidates by their capacity for remembering terms and diagrams that are "fundamentally incorrect, physiologically inadequate, and clinically untrue." But we do not doubt that the outcome of Head's efforts in following up and developing Hughlings Jackson's ideas will be a better understanding of the processes which underlie the production of speech.

THE FILARIASIS EXPEDITION.

THE expedition sent to British Guiana by the London School of Tropical Medicine to investigate filaria has been at work since the middle of April. It was dispatched at the request of the then Secretary for the Colonies, Lord Milner, who considered that further information was required as to the best method of controlling filariasis. The leader of the expedition is Professor R. T. Leiper, director of the helminthology department of the London School of Tropical Medicine; he was accompanied by Dr. John Anderson, Dr. Chung Un Lee, and Dr. Mahommed Khalil of the Egyptian Medical Service; Dr. G. M. Vevers, demonstrator of helminthology in the London School of Tropical Medicine, will leave England to join the expedition very shortly. It has its headquarters in Georgetown, the capital of British Guiana, and has, we learn from the Demerara *Daily Argosy*, been engaged in a house-to-house visitation in certain areas. There is evidence that filariasis is a house infection, and examination of the blood commonly shows that where one or two pronounced cases of the disease are found other members of the household, though apparently healthy, harbour the nematode. Steps have also been taken to make a kind of mosquito census to ascertain the proportion that are infected. It is known that more than one species of mosquito is capable of acting as host, and one of the objects of the expedition is to ascertain how many such species there may be. The microfilariae enter the mosquito's stomach with the blood when it sucks; they rupture the sheath in which they are enclosed, pierce the wall of the stomach and find their way into the muscles of the thorax, where they undergo development and become much larger. From the muscles the embryo passes into the labium, and when the mosquito bites it becomes liberated. It finds its way through the skin perhaps by the mosquito's puncture. The stages by which it reaches the adult condition are not known, but it is when full grown that it produces the chief signs of the disease—lymphangitis, abscess, chyluria, and elephantiasis. It was originally arranged that the expedition should last for six months, and at the suggestion of Sir Patrick Manson it is proposed that visits shall be paid to certain West Indian islands, choosing one, such as Barbados, where the rate of attack is high, and another, such as Grenada, where it is low. It is hoped that by comparing and contrasting the circumstances of two such islands light may be thrown on the conditions which favour the filaria.

THE SIGNIFICANCE OF SYPHILITIC REINFECTION.

IT is usually believed that as long as a person is suffering from syphilitic infection he is practically immune to further infection with *Spirochaeta pallida*; in fact, the appearance of a primary chancre in an individual who has previously had syphilis is commonly regarded as the most convincing proof, provided the chancre is not on the site of the original one, that the earlier infection had been cured or had died out. Before the era of salvarsan treatment examples of such reinfection were comparatively rare, but since then numerous cases have been reported, and have indeed been considered as evidence of the success of the treatment in eradicating this spirochaetal infection. This would appear to be a logical conclusion; but in the case of salvarsan treatment an element of uncertainty is introduced by the absence of certain knowledge as to the influence of the drug on syphilitic immunity. As this is obviously a matter of practical importance, Wade H. Brown and Louise Pearce,[1] of the Rockefeller Institute for Medical Research, have investigated it experimentally, with results that throw serious doubt on the validity of the current opinion. They found that rabbits infected by inoculation of the testes with an emulsion of the *Spirochaeta pallida* and eighteen days later treated intravenously with salvarsan or neo-salvarsan in doses insufficient to cure the infection, as shown by relapses of the testicular lesion, are highly susceptible to cutaneous reinoculation and developed characteristic primary chancres; in some instances these rabbits with an active syphilitic infection after subcurative doses of salvarsan preparations were more susceptible than

[1] Wade H. Brown, M.D., and Louise Pearce, M.D., *Journ. Exper. Med.*, Baltimore, 1921, xxxiii, 553-567.

normal rabbits to infection by *Spirochaeta pallida*. Control rabbits, infected by testicular inoculation of the spirochaetal emulsion but not treated with salvarsan preparations, were highly resistant to cutaneous infection with the same strain of spirochaete. It is suggested that treatment with substances such as salvarsan preparations may cause an infection to revert to the condition characterizing the first period when spirochaetes are present, but immunity has not developed, and further, that the spirochaetes which survive the action of the drug may for a time be so attenuated or enfeebled as to be incapable of arousing an antagonistic reaction on the part of the host, thus favouring the multiplication of more vigorous spirochaetes introduced from without, and the production of a characteristic primary lesion at the site of a fresh inoculation.

TOBACCO AND WORK.

AN article on the output of users and non-users of tobacco in a strenuous physical occupation, by J. P. Baumberger, Edna E. Perry, and E. G. Martin, which appears in the *Journal of Industrial Hygiene* for May, is the second of a series of records dealing with the general significance of the use of tobacco in industry. The previous article dealt with the effect of tobacco on strenuous mental work of a routine nature, the occupation chosen for investigation being telegraphy; it was found that the heavy smokers did not maintain the level set by the light smokers; there was a lessened ability to sustain output at the end of the working day, and a diminished power to react by increased effort to an increase in the volume of work. Heavy smokers had a better output during the first hours, but this was not enough to compensate for the lowering of efficiency towards the close of the day. The present study, on the other hand, required a routine occupation in which some process was repeated many times during the day and was dependent on the speed of the individual worker, unaffected by the rate at which machinery was driven; bottle making was chosen as best meeting the required conditions. In the factory where the investigations were made the old method of blowing glass bottles by mouth had been largely abandoned, and the work was for the most part done by machinery manipulated by certain skilled workers, with the aid of inexperienced helpers; in some machines, however, the whole process was carried out automatically under the supervision of an unskilled attendant. The average age of the eighty-five skilled workers studied was thirty-six years, and the average number of years spent in the glass industry was twenty. The men were largely native-born in the United States, with little schooling, and, on the whole, a very steady, clean-living class, their earnings being from eight to ten dollars a day. Their smoking and chewing habits were studied by direct questioning, and by observation and indirect conversation. Of the men 8 per cent. did not use tobacco, 83 per cent. smoked, 29 per cent. chewed, and 20 per cent. both smoked and chewed. Apparently 9 per cent. chewed but did not smoke. From the data obtained it appeared that the workers who chewed had a much lower output rate than those who only smoked or did not use tobacco in any form; the light smokers, however, showed some inferiority in output rate, and the heavy smokers a slight superiority. The authors seek to explain this result by surmising that "insufficient use of tobacco has more deleterious effects than a larger use which might confer an immunity." But it seems more likely that the differences are not statistically dependable, and it would be well to have more details than the article gives about the workers investigated and their habits of work. The low output of the chewers of tobacco as compared with smokers is probably due, as the authors suggest, to the greater absorption of nicotine. The conclusions drawn from the investigation are that in a strenuous physical occupation of this type smoking has comparatively little effect, but that the output rate is distinctly lowered by chewing.

THE HARVEIAN SOCIETY.

THE annual dinner of the Harveian Society of London—the first dinner to be held since 1913—took place at the Café Royal on June 22nd. Dr. Godfrey de Bec Turtle, president of the society, was in the chair, and there was a large assembly of members of the society and guests, including Sir John Bland-Sutton, Sir James Dundas Grant, Sir Malcolm Morris, Sir D'Arcy Power, Sir StClair Thomson, Sir Sydney Russell-Wells, Sir William Willcox, Dr. A. C. Jordan, and Mr. H. Curtis Bennett, K.C. The president proposed the loyal toasts, referring to the fact that on that day the King and Queen were visiting Belfast for the opening of the Ulster Parliament, and the toasts were honoured with more than usual enthusiasm. The toast of the Harveian Society was then given by Sir D'Arcy Power, who said that ninety years had passed since the Harveian Society was established, and never was it more flourishing than to-day. He gave some account of the human side of Harvey, which was less known than the scientific side, illustrating this by Harvey's own account of his ambrosial adventures on the Continent. The toast was responded to by Dr. Turtle, who said that the society had been founded by ten medical men who met for the purpose at the Western General Dispensary in Lisson Grove on September 15th, 1831. The period in which the society was founded was one fruitful beyond all others in the development of medical science, for two great discoveries had just been made and were beginning to bear fruit, the first being the discovery of auscultation by Laënnec in 1818, and the second that of Richard Bright, who had published his celebrated *Reports of Medical Cases*, showing the connexion between dropsy, albuminuria, and kidney disease, in the year 1827. These two great discoveries were of supreme importance in the development of medicine, but other events interesting in medical history occurred at this epoch. Dr. Marshall Hall, one of the founders of the society, published in 1833 his demonstration of the automatic reflex action of the spinal cord, while it was in 1836 that typhus and typhoid were first distinguished as separate diseases. It was natural, therefore, that medical men should meet together to discuss these great events, and it was in this way that the Harveian and many other medical societies began their existence. Dr. Leonard Guthrie presided at the last occasion on which the dinner had been held, in 1913, and his untimely death was a great loss not only to the society, but to medicine in general. With the coming of the war the Harveian Society, like many others, almost ceased to exist, but a few faithful members kept a minimum of meetings going in spite of being bombed out of their old rooms. In practically every theatre of military operations, from Rouen to Baghdad, a local medical society sprang into existence, but this was hardly to be wondered at when the wealth of clinical material available was considered. The toast of "Kindred Societies and Guests" was proposed by Sir James Dundas Grant in his happiest vein of anecdote, and was responded to by Sir John Bland-Sutton, who referred to the great traditions of the Harveian Society; he himself, when younger, had been a member of as many as ten medical societies at once, and he thought very highly of their value and usefulness to medical science. The toast was also responded to by Mr. H. Curtis Bennett, K.C., in a witty speech interspersed with stories of medicine and the law.

A CUSTODIANSHIP OF MEMENTOS.

AMERICANS have a happy knack, in which we in this country seem to be wanting, of rendering homage to contemporaries by little graceful acts that are remembered. In 1910 the College of Physicians of Philadelphia, which possesses certain objects that once belonged to Rush, Jenner, Lister, Pasteur, and Curie, established a "custodianship of mementos." The office, if it should so be called, was held for seven years by Dr. Weir

Mitchell, whose successor was Dr. Simon Flexner of the Rockefeller Institute; after three years he passed on the honour to Dr. William H. Welch of Baltimore; and Dr. Welch has promised to nominate a successor. A fund sufficient to maintain and enhance the collection has been given, and with the mementos are preserved portraits, autograph letters, and biographic notes. The memento of Benjamin Rush is his watch inscribed with his name, and a reminder that he was a "signer of the Declaration of Independence." He was one of the little circle of friends who immediately surrounded Washington, and in a recent publication of the College it is said, "His name has come down to our time as, perhaps, the most representative medical man who combined culture with patriotism, scientific zeal with literary attainments, and religious devotion, and an indomitable courage with unwearied power for work." The memento of Jenner is his inkstand, once the property of Weir Mitchell, who used it for years and bequeathed it to the College of Physicians. The memento of Lister is a small case of instruments containing three scalpels, two retractors, and, apparently, a handled needle. It was obtained by the College through the kindness of Sir Rickman Godlee. The case must, we think, have been used by Lister in some early stage of his career. The memento of Pasteur is a model of a tartrate crystal made by him and used to demonstrate his views during the controversies of 1862. It was given to Dr. W. W. Keen by Professor Calmette. Finally, the founder of the custodianship, Dr. Robert Abbe of New York, an associate fellow of the College, has recently presented an instrument given him by Madame Curie. It was made by Professor Pierre Curie, and was used to determine the strength of electron discharge from radium. It was used also to demonstrate the fact that crystalline substances, when compressed or expanded, emit electrons, owing to the strain put upon them. In this instrument there is a long slice of quartz crystal, held at one end and weighted at the other. An electroscope, placed opposite the face of the crystal, records the discharge of electrons, which is in proportion to the weight put upon it. Of the apparatus named the "quartz-piezo-electrometer" (a quartz pressure electric meter) Madame Curie wrote to Dr. Abbe: "It was designed by Professor Curie and is one of those used by us in our early research work for measuring the radioactivity of radium. Having served its purpose, it was replaced by other apparatus."

THE PHARMACEUTICAL SOCIETY ANNUAL DINNER.

THE annual dinner of the Pharmaceutical Society was held at the Connaught Rooms on June 21st, with the president of the society, Mr. E. T. Neathercoat, in the chair. Among the guests were Sir Alfred Mond, Minister of Health, Surgeon Vice-Admiral Sir Robert Hill, Sir Malcolm Morris, Sir David Prain, Sir William Willcox, Sir Anthony Bowlby, Sir W. S. Glyn-Jones, Sir Richard Winfrey, M.P., Mr. Howard Mummery, Mr. E. B. Turner, and Dr. Alfred Cox. After the loyal toasts had been honoured the toast of "The Pharmaceutical Society" was proposed by Sir Alfred Mond, who referred to the fact that it had now reached the age of three score and twenty years. He acknowledged the assistance which had been rendered to the Government by the society, particularly in making the health insurance scheme successful; during the war it came to the assistance of the State in a manner no less noteworthy. The Ministry of Health was under an obligation to those of its members who sat on the Select Committee on the Proprietary Medicines Bill and assisted in the framing of that measure, the passage of which he hoped was only postponed. The *Pharmacopoeia* expanded every year, and thus did the duties of members of the society get heavier and more complex. The president, Mr. Neathercoat, who responded, pointed out the important duties which devolved upon the Pharmaceutical Society. Under the aegis of the Privy Council it arranged the curriculum and course of study for its students, it maintained an official register of those who were qualified, it voluntarily devoted much time and money to the promotion of pharmaceutical education, and had for many years conducted a school of pharmacy. It had recently divested itself of some of that work, which had gradually been forced on the society but which was felt to be outside its ambit, and he hoped the society would be set free to devote itself to the principal objects of its charter—the scientific side of the profession of pharmacy and scientific research—and that in the future it would be of even greater service to the community. The toast of "Our Guests" was proposed by Mr. E. White, who referred to the distinguished representatives of Government departments, and of medicine, surgery and science who were present. The relations between the society and the different medical organizations were of the most cordial nature, and the value of co-operation between medicine and pharmacy for defensive purposes had been strikingly demonstrated by the joint action taken recently in connexion with the Dangerous Drugs Regulations. The toast was responded to by Surgeon Vice-Admiral Sir Robert Hill, who remarked that prescription writing had fallen off from the days when his father instructed him in the writing of ℞ with a good tail to it and of the Latin for every ingredient in the prescription; Sir Anthony Bowlby also replied, saying that as a surgeon he had very little to do with drugs, but he had personal reasons to know during the war how deeply indebted the nation was to the Pharmaceutical Society.

WE regret to learn that Professor Stuart McDonald will be unable, owing to ill health, to preside over the Section of Pathology and Bacteriology at the annual meeting of the British Medical Association in Newcastle-upon-Tyne; his place will be taken by Professor Matthew J. Stewart of Leeds.

THE Committee of the Pathological Museum at the Annual Meeting wishes to call attention to the importance of the Museum, and the necessity of making it it an adjunct to the work of the Sections. Readers of papers and those taking part in the discussions, who may have specimens illustrating the work done in the various Sections, and all who wish to exhibit specimens of general interest, are asked to communicate at once with the Secretary of the Pathological Museum Committee, Dr. A. F. Bernard Shaw, College of Medicine, Newcastle-upon-Tyne.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Voluntary Hospitals: Government Grant.

COLONEL MILDMAY asked the Minister of Health, on June 23rd, whether he could make any announcement as to the decision of the Government on a report of Lord Cave's committee as to voluntary hospitals.

Sir Alfred Mond replied that the Government had decided, in view of the serious state of the voluntary hospitals, to ask the House to vote a supplementary estimate of £500,000 to meet the deficits during the present year. This money would be under the control of the Commission and local committees recommended by the Cave committee; he was taking immediate steps to appoint the Commission. In view of the serious financial position of the country the Government had decided with regret that they could not give effect to the full recommendation of the Cave committee for a grant of one million pounds. They confidently anticipated that as they had done their part voluntary effort would find the balance required, and thus maintain the root principle of the voluntary system. A Commission *ad hoc* was recommended by the Cave committee, which had also recommended its composition. He proposed that the chairman should be Lord Onslow, the Parliamentary Secretary to the Ministry of Health. He added, in reply to Sir C. Kinloch-Cook, that conditions would be attached to the

grant. Need would have to be proved and the position of the hospital ascertained. He hoped that the voluntary effort would be commensurate to the sum the Government was granting. On further questions the Minister said that members who had studied the report would see that cottage hospitals were included, and that the Secretary for Scotland would have power to appoint a representative on that Committee. Irish hospitals were not included in the scope of the inquiry. In reply to Sir Philip Magnus, the Minister said that the Government expected a corresponding private effort to be made. He could not lay down the whole scheme in answer to a question, but the scheme and the manner in which it was to be carried out would be placed before the House in due course.

Dentists Bill.

The Dentists Bill was taken in Committee in the House of Lords on June 22nd.

On the first clause Lord Greville presented two amendments, the object of which was that there should be a separate list for the unqualified dentists who were under the measure to be included in the *Register*. Under the bill the Government were, he said, proposing to transfer some 10,000 or 11,000 unqualified dentists to the list of qualified men. The two chief reasons given by the Government for the bill were the shortage of qualified dentists and the desirability of putting a stop to the practice of unqualified dentistry. He could not see how, by adding unqualified men to a qualified list, they were increasing the number of qualified dentists; they were not by this action making anyone more skilled. In the second reading debate Lord Knutsford had said that unless the bill passed good men would not join the profession. In the report of the British Dental Association he found that the number of students in training in 1920 showed an increase approximately of 300 per cent., and the report stated that a considerable increase in the number of dentists qualifying annually might be safely expected. The placing of unqualified men on a separate register was strongly urged by the British Dental Association, but when told by Sir Alfred Mond that if it were pressed he would withdraw the bill they agreed not to pursue the matter; that, however, did not mean that the majority of qualified dentists agreed.

The Earl of Onslow (Parliamentary Secretary to the Ministry of Health) read a telegram from the British Dental Association, which said: "British Dental Association in annual meeting assembled at Bath this day unanimously supported Dentists Bill as submitted by Minister of Health." The number of persons actually practising who were not registered under the Act of 1878 was at least two to one of those registered under that Act and possessing diplomas. He maintained that the proposed conditions for the admission of unqualified men would protect the public from charlatans. Further, he would move an amendment for the Government later making it an offence for any person to describe himself as a surgeon dentist unless he were in possession of a qualification recognized by the Dental Board. A person who had a bogus degree as a surgeon would not be able to describe himself under the Act as a surgeon dentist. All those persons at present on the *Register* (except a very few admitted by the Act of 1878) were holders of diplomas in dental surgery, and would, therefore, have the exclusive right of calling themselves surgeon dentists.

Viscount Knutsford, strongly supporting the bill as a practical compromise, said the members of the Incorporated Dental Society had to have five years' training before practising as dentists, and the Committee concluded that they must be admitted for several reasons. In many districts in England there were no qualified dentists at all. Under the compromise men with diplomas had to surrender their privilege of being the only men on the register, but their reward was that in future unregistered practice would be forbidden. That was something very much stronger than had ever been suggested in the medical world before, because there was nothing to prevent any person from setting up as a bonesetter or a faith curer, or anything else; but under the bill no one might practise dentistry unless on the *Register*; if a man misbehaved himself while on the *Register* there was power to remove his name.

The Marquis of Salisbury read a telegram he had received from the Medical and Dental Defence Union of Scotland, which said that Scotland agreed to the second reading in the Commons on the understanding that the amendments would be left to the unbiassed decision of the Committee. The telegram requested him to support Lord Greville in the interests of good government and good faith. A telegram, asking for support for Lord Greville's amendment, had come from a committee of Irish dentists. He demurred to the suggestion of Lord Knutsford that the main consideration was control, for that would mean that it did not matter what skill a man had as a dentist so long as he was controlled.

Lord Riddell and Lord Southwark both pleaded for acceptance of the bill as it had been agreed upon, and the Earl of Onslow briefly replied to the earlier criticisms. He insisted that those who were to be included in the *Register* would have implied conditions of skill from the information that would have to be given as to character and length of practice. The amendment was then negatived.

A number of verbal amendments to meet certain amendments made in the House of Commons were then carried at the instance of Lord Onslow, who afterwards moved the insertion of the following new clause to follow Clause 3:

Use of Titles and Descriptions.

(" . A person registered under the principal Act—

(*a*) shall by virtue of being so registered be entitled to take and use the description of dentist or dental practitioner;

(*b*) shall not take or use, or affix to or use in connexion with his premises, any title or description reasonably calculated to suggest that he possesses any professional status or qualification other than a professional status or qualification which he in fact possesses and which is indicated by particulars entered in the *Register* in respect of him.")

He explained that this was the amendment to which he had referred earlier. A number of other drafting changes were adopted and the bill passed through Committee.

The bill was read a third time on June 28th and passed.

National Health Insurance Bill.

Sir Alfred Mond, on June 22nd, moved the second reading of the National Health Insurance Bill, which has been framed to meet the increased cost of the administration of insurance societies and Insurance Committees. There had, he said, been a progressive increase owing to the effects of the war—in cost of postage and other matters—since 1919. In January a Departmental Committee reported in favour of raising the present annual allowance to approved societies from 4s. 5d. to 4s. 10d. to include all postal charges. The bill had been accepted, he understood, by those who represented approved societies and by the Treasury. In future the societies should contribute 6d. instead of 4d. to the cost of the Insurance Committees. There would be no diminution in the benefit to insured persons, nor would their contributions be increased. Incidentally, the alterations would effect the saving of £300,000 to the Treasury. The Act of 1918 established a fund called the Central Fund, made up of a fixed Exchequer contribution of £150,000 a year, and every society contributed yearly a levy amounting to an eighth of its contingency or reserve fund. The object of this Central Fund was to make grants to societies found on valuation to be in deficiency, and liable either to a levy or reduction in the normal rates of benefit. It had accumulated to over two million sterling, and the valuation had come out so satisfactorily that it was evident that calls upon the fund would be few and small. Probably no more money would be required for the fund for many years in any event. Therefore the Departmental Committee felt justified in recommending the suspension of the levy on the Societies' Contingencies' Fund and the diversion of this money to the benefit fund. This would enable the increase from 4s. 5d. to 4s. 10d. a member to be met, and also the benefit fund to be debited with a further 2d. per member in respect of the cost of Insurance Committees without interference with contributions or benefits. The sum of 4s. 10d. was fixed for two years, and was subject to revision when costs came down. The Exchequer would be relieved of its annual contribution of £150,000 to the Central Fund so long as the levy on the Societies' Contingencies' Fund was suspended, and that partly explained the saving of £300,000 by the Treasury to which reference has previously been made. Further, it was intended to make considerable reductions in the size of the Insurance Committees, and a saving on travelling and subsistence allowances of £4,000 to £5,000 would accrue.

After some discussion the bill was read a second time.

Dr. Addison's Appointment.—Included in the Vote for Cabinet Offices submitted to the Committee on June 23rd was the sum of £5,000 for the salary of Dr. Addison, Minister without portfolio. In view of the large amount of criticism in the press and elsewhere of the office Mr. Lloyd George himself moved the Vote. It will be remembered that Sir L. Worthington Evans for a time held a similar position and then was made Secretary for War. Shortly after this latter appointment Dr. Addison was transferred from the Ministry of Health to the post of Minister without portfolio. Mr. Lloyd George, in justifying that arrangement, said it was necessary for a limited time, inasmuch as there were numerous tasks which Ministers with the charge of departments could not undertake. Dr. Addison was chairman of four important Cabinet Committees and was a member of six other Committees. The Government, however, would only ask the House for a sum of money that would enable it to retain the Minister until the end of the Session. Lieut.-Colonel Guinness had down an amendment to reduce the Vote by £2,000, and if instead he would agree to the reduction being made to £2,500, which would cover the period for which the Minister's services were required, the Government would accept it. The Premier then touched on the personal aspect of the matter. He was certain that the vast majority of those members of that House who objected to the Vote were not moved by any feelings of prejudice against Dr. Addison, though his interest in health had excited a good deal of prejudice. It was said, moreover, that he was rather too anxious to build houses; but members would bear in mind that his activities in relation to housing came at the worst time for any Minister. Labour and material were more expensive than they had ever been and more difficult to procure. There had been a great deal of criticism for expenditure here and there, but not a word of generous recognition of what Dr. Addison did to cut down expenditure when he was Under-Secretary to the Ministry of Munitions. He was mainly responsible for the great system of costings which reduced the cost of the provision of munitions, first at the Ministry of

Munitions and afterwards at the Admiralty and at the War Office, by hundreds of millions sterling. Lieut.-Colonel Guinness accepted the suggested alteration in his amendment, and after further discussion it was agreed to. Mr. Esmond Harmsworth, in defending the criticism of the post, said that in pressing this matter those who were allied on the Anti-Waste issue had absolutely no animus against Dr. Addison; although he was regarded as one of the master-spenders of the past, there was no objection to him in the personal sense.

Ministry of Health, Wales.—In answer to Mr. Haydn Jones, Sir A. Mond stated, on June 21st, that the total number of persons employed in the Welsh Insurance Commission in 1914 was 247, and the total cost £36,025. In 1921 the number was 279, and the cost £84,104, the work on various health services in Wales, which was done in 1914 by the Local Government Board having been transferred to the Welsh Board of Health, in pursuance of the Ministry of Health Act, 1919. A temporary staff was also employed in Wales on housing administration; the number in March last was 71, and the total cost £22,000.

Salaries at the Ministry of Health.—Sir A. Mond, on a question by Mr. Swan, on June 22nd, said that the number of officers of the Ministry of Health in receipt of a substantive salary of £1,000 a year or upwards was 83. In the original Departments out of which the Ministry of Health was created the number was 29. In addition, there were 215 officers receiving a substantive salary ranging between £570 and £1,000 a year, who, with the addition of the present war bonus, were drawing upward of £1,000 a year. The reduction of the war bonus, contemplated to take effect from September 1st next, would reduce this number by some 150, and the total figure would be still further decreased by reductions in staff he was now making.

The Maternity Convention.—Major Hills asked, on June 21st, whether the Government would submit a resolution embodying the terms of the Labour Convention and the Maternity Convention to the House of Commons before July 27th, when the time limit for bringing conventions before the competent authority for the enactment of legislation expired. Mr. Chamberlain said that the Government was anxious to give the House the fullest possible opportunity for the discussion of these conventions. Such an opportunity was afforded by the recent debate, and there would be further opportunity for discussion so soon as the pressure of other business admitted. As to the constitutional issues involved in the question, he referred Major Hills to the Attorney-General's speech in the discussion that had taken place.

Ministry of Pensions: Cost of Administration.—Asked, on June 23rd, several questions as to the comparative cost of administration of the Ministry of Pensions, Major Tryon said there could be no just comparison because from the year 1918 onwards the work of War Pensions Committees had largely increased, and the staffs of local committees which in 1918 were mainly voluntary were now employed on a salaried basis. In 1918, before the extension of the work due to demobilization and other causes, the approximate amount of administrative expenses of local committees was £500,000; in 1920 it was £1,200,000. This increasing expenditure was one of the reasons leading up to the appointment of a Departmental Committee of Enquiry. As regards staff in the direct employ of the Ministry the number in December, 1918, was 9,036; in December, 1920, it was 17,804, without reckoning hospital staffs. The present number of officials (including 151 medical officers employed on a temporary basis) who were in receipt of salaries of £1,000 a year or more, was 184. The number receiving £500 a year or over, including bonuses at the dates mentioned in 1918 and 1920, were respectively 268, including 160 medical officers and 880, including 642 medical officers.

Alleged Hardships under Pension Decisions.—In the miscellaneous debate on the usual adjournment motion, on June 24th, Mr. Cape seized the opportunity to raise several questions as to pension decisions. He regretted that he had not been able to give notice, and that therefore the Minister of Pensions was not present. He had gathered from a question he had put to the Minister of Pensions some time ago, that in 10,000 cases out of 14,000 heard before the Appeal Tribunals, the decisions had been given against the men. The appeals by pensioners followed upon attempts made by local committees to stop or reduce pensions, and he regarded the position as very unsatisfactory. He instanced the case of a man at Newcastle, discharged from the army as medically unfit after three years' service, paid a pension until about the middle of last year, and then told that after all what he was suffering from was not attributable to the war, although he was unable to follow any employment. Mr. Cape next referred to another case of a widow whose husband was called up as a Territorial in 1914. He went early to France, was married in May, 1915; and before he died, was the father of three children. Before his discharge from the army in 1916, he received a pension and allowances for the children, but although his death was definitely stated to be due to disease caused by the war, the allowance to his widow had now been stopped. Thirdly, Mr. Cape quoted the case of a man who lost a leg in France. He was paid pension up to February 22nd last; then he was told that he had not lost his leg owing to the war. It was well known that he went to France with two legs and came back with only one. After considerable difficulty his friends were able to get the pension renewed, but the grievance was that for fourteen weeks he had to go without any pension because someone had made up his mind that the man was not entitled to it. Captain Elliot pointed out that the Appeal Tribunals were nominated by the Lord Chancellor, whose decisions the House could not review. They were so established in order that the Tribunals might be independent of the Ministry of Pensions and the House of Commons. If any change was required it should be considered broadly by Parliament.

Use of Spirits in Hospitals.—In Committee on the Finance Bill, on June 21st, Mr. Lyle moved a new clause to provide that Section 4 of the Finance Act, 1918 (which permits the reduction and allowance of duty in respect of spirits used in medical preparations or for scientific purposes), should apply also to spirits used in hospitals on prescriptions, while Section 7, Subsection (1), of the Finance Act, 1920, should not apply to wines supplied on prescription in hospitals. Mr. Lyle said that he had moved a similar clause last year on behalf of the hospitals, but the then Financial Secretary to the Treasury was fearful what might happen to spirits in hospitals once the cork had been taken out of the bottle. The hospitals had to pay the full spirit duty, which was very heavy. During the war the Red Cross hospitals got spirits at a much reduced duty, and the concession he now asked was a small one. Mr. Hilton Young, in reply, said that a considerable concession had been made to hospitals in regard to the exemption on spirit actually used in medical prescriptions. What was now asked went a little further. The great objection would be that it would constitute a very serious breach of the control by the Inland Revenue over the use of spirits. Moreover, there was a considerable body of opinion amongst hospital authorities that there would be danger of abuse. Mr. Lyle said that the British Hospitals Association quite approved of the amendment, but he did not press it to a division.

Leave for Medical Officers in Mesopotamia.—Sir M. Dockrell asked, on June 22nd, whether the Colonial Secretary would extend to the Royal Army Medical Corps and Indian Medical Services the recent orders, General Routine Orders No. 24 of January 10th, 1921, and No. 437 of May 4th, 1921, permitting officers other than those of these services I.M.S., who have completed their time in Mesopotamia and are due to serve a further period in India, such leave as they may be entitled to under existing leave rules before proceeding to India. Lieut.-Colonel Stanley, for the War Office, said the question of the grant of leave for the officers referred to was a matter for the local military authorities. Officers of the R.A.M.C., whose tour of foreign service was five years, served two years in Mesopotamia and three in India; this procedure could not be carried out if officers were granted leave on the expiration of their period of service in Mesopotamia before transfer to India. Sir M. Dockrell wished to know why there was this differentiation between medical and other officers. Lieut.-Colonel Stanley said that the question of difference between medical and combatant officers had always been the same.

Territorial Army Medical Service.—Lieut.-Colonel Fremantle asked, on June 22nd, what were the pay and allowance respectively of an A.D.M.S. and a D.A.D.M.S., T.F.; what in general were their duties; and how many hours a week did they entail. Lieut.-Colonel Stanley replied that the emoluments (including all allowances) of Assistant Directors of Medical Services (Territorial Force), which were issuable only during annual training, amounted to £4 1s. 3d. a day. The emoluments of Deputy Assistant Directors of Medical Services (Territorial Force), which were issued all the year round, varied from £2 9s. 10d. to £1 16s. 7d. a day, according to the rank of the officer (major or captain) and whether he was married or unmarried. The duties of an A.D.M.S.(T.F.) in peace are laid down in paragraphs 46 and 386 of the Territorial Force Regulations.

Insurance Contributions.—On a question by Sir Walter De Frece as to the large number of men and women in arrears with subscriptions under the National Insurance Act, Sir A. Mond said, on June 23rd, that he intended to lay on the table regulations which would enable approved societies, if they thought fit, to give some additional relief to certain classes of insured persons who by reason of arrears were liable to suspension.

The Public Health (Officers) Bill was read a second time in the House of Lords on June 28th.

Light Artificial Limbs.—On June 23rd, in reply to Major Cohen, Major Tryon said that the Minister of Pensions intended to set up a court of inquiry to consider the question of the advantages of the light artificial limb.

The Effect of Unemployment upon Health.—Asked by Sir Walter De Frece whether there were signs of increase of cases needing medical attention through privation entailed by unemployment, and whether such increase was anticipated in the near future, Sir Alfred Mond said statistics did not show that this was so at present, but an extended period of widely spread unemployment could hardly be without effect upon the health of the country.

Poor Milk.—Mr. Hurd asked, on June 21st, whether, in view of recent proceedings, the Minister of Agriculture would consult the Minister of Health as to the issue of a circular letter to local authorities, informing them that the basis of prosecutions for supplying milk deficient in fat should be not one of two tests made in exceptional circumstances, but a series of tests, so that, while care was taken by the authorities to detect adulteration, the farmer or dairyman should not be penalized for faults for which neither could be held responsible. Sir Arthur Boscawen replied that he should be prepared, if the evidence warranted it, to consult the Minister of Health with a view to the issue of such a circular.

England and Wales.

THE WILLS GIFTS TO BRISTOL.

THE Bristol Royal Infirmary has recently received a gift from its president, Mr. H. H. Wills, of securities to the value of £105,000. This is the largest single donation which has been made to the institution during the whole of its history. The intention of the donor is that the capital sum shall remain invested, and the interest, which will amount to about £5,000 per annum, shall be used for current expenses. Such munificent gifts are altogether unexpected at the present time, and this one will be all the more appreciated because of the serious financial difficulties which have overtaken the Royal Infirmary in common with most other voluntary hospitals. Bristol University announces almost simultaneously the receipt of the sum of £200,000 from the same benefactor to build and equip a new physics laboratory. The Prince of Wales, at his recent visit to Bristol, laid the foundation stone of a new building for the Homoeopathic Hospital, the cost of which has been borne by Mr. Melville Wills as a memorial to his son, Captain Bruce Melville Wills, who fell in action during the war. The amount contributed by various members of the Wills family to the University and to the medical institutions of Bristol has been very large, and it has the additional merit of being given during the lifetime of the donors, thus ensuring to the recipients not only the actual pecuniary advantage, but also the continued interest and practical working support of the benefactors. "It is the life of a gift to be done in the life of the giver."

THE LEEDS GENERAL INFIRMARY: RESIGNATION OF MR. CHARLES LUPTON.

The annual meeting of the Leeds General Infirmary, always an event of more than local interest, demands special notice this year, owing to the admirable speech made by Mr. Charles Lupton, a speech which, unhappily, is the last that he will deliver in the capacity of treasurer and chairman of the weekly board. Mr. Lupton became a member of the board in 1882, and on the resignation of Mr. Benson Jowitt, some twenty years ago, was unanimously elected chairman. His resignation is a great loss to the infirmary, but everyone must feel that, after such a long and valuable period of service to the institution in which he has taken an interest so constant and whole-hearted, his rest is well earned. Of the work accomplished by Mr. Lupton it would, indeed, be difficult to speak in terms of praise too high: he has thrown himself into it with the greatest zeal and with quiet and confident enthusiasm. His work in connexion with the recent enlargement of the infirmary, carried out as a memorial to the late King Edward, was a model of tact and courage. It involved the acquisition of property surrounding the infirmary, which is said to have belonged to some seventy different persons, and all was accomplished quietly and without litigation. Mr. Lupton has done a great deal to improve the status and the training of the nurses at the infirmary, and his voice and influence have always been on the side of progress. In proposing a vote of thanks to Mr. Lupton for his services, Sir Berkeley Moynihan truly said:

"Every member of the Faculty has the profoundest respect for his character, the warmest admiration for his unwearying devotion to the infirmary, and deep affection for his personal qualities. All had witnessed the spectacle of a man of great ability and of untiring industry consecrating his life to one dominating passion—love of the General Infirmary at Leeds."

In acknowledging the vote of thanks, Mr. Lupton showed by his remarks how sound are his views on the relation of a large hospital to the community:

"There is one side of the work of the infirmary," he said, "which I should like to mention, which has been growing upon me during all the years I have been connected with it. That is, that the work of the infirmary, great as it is, is not confined to that done within its walls. When I joined the board some forty years ago, I did so believing that its great work was that of bringing medical and surgical assistance within the range of the poor people of Leeds and the district. As time has gone on I have seen that, though this is a very important part of the work and the actual cause of the existence of the infirmary, it is really only a part of the flood of beneficence which it spreads round the whole district. We have a school in this infirmary for training the best type of medical men and nurses. The infirmary has a great tradition. The fact of becoming an officer—even a subordinate officer—in its service has a great effect on the character of those who come to work here, and this applies to students and to nurses alike. We are constantly sending out a supply of medical men, trained in the best principles of medicine and surgery. While the infirmary treats thousands of persons, its work affects tens of thousands through its students. When Lord Lister left Glasgow to go to Edinburgh in order to teach Edinburgh as he had taught Glasgow the use of antiseptics in the treatment of disease—and he had afterwards to go to London to preach to an apathetic audience—the Faculty of the Leeds Infirmary encouraged Mr. Teale, as their representative, to explain to Mr. Lister, as he then was, that, while it was a fact that in some cases the treatment he had advocated had failed, they had absolute confidence in the value of that treatment, and that any failure was due to the faulty carrying out of the details rather than to any defect in the principles involved. I am proud to think that our little hospital in Leeds was even then manned by people so awake to the possibilities of the treatment that they should have sent such a message to Lord Lister at that time."

It is a source of satisfaction to everyone that Mr. Lupton's resignation of the position of treasurer does not mean his retirement from the board, on which it is hoped that he may sit for many years to advise and to help. Mr. Lupton's successor is Mr. T. L. Taylor, well known as a cricketer, having played for Cambridge and for Yorkshire; he is a business man of large experience and a large employer of labour. In his speech moving the adoption of the annual report the retiring chairman touched upon finance. Like all similar institutions, the Infirmary causes its managers anxiety on this score. Happily the year has been characterized by what may be termed a large number of unanticipated donations, which has enabled the Infirmary to pay its way and to do something towards replacing the investments which had to be sold during the war. These extra donations amounted to over £120,000, and include a sum of £50,000 from Mr. Joseph Watson, a member of the board, £35,000 from the Prince of Wales's War Relief Fund, £5,000 from the Red Cross War Fund, and £30,778 from legacies. Of these items the only one which can be expected to be represented next year is the last, and it will be a great surprise if it reaches the figure for 1920. The regular income is still a long way below the annual expenditure, but there are hopeful features in the increasing interest which is being taken in the work of this, the greatest of the Yorkshire charities. Reference was made to the scheme inaugurated by Mr. Braim for getting the employers of labour in Leeds to subscribe a definite sum per head in respect of those in their employment. The scheme is not yet in full working order, but the results are promising. Mr. Lupton also touched upon the developments in the radiographic and radiotherapeutic departments, on the growth of the nursing school and the institution by the University of a diploma in nursing, on the dental department and on the work of the department for the treatment of venereal disease. After making a feeling reference to the death of Mr. Edward Ward, who was consulting surgeon to the hospital, Mr. Lupton ended his notable speech in these words, which it is hoped will reach the hearts of those who are able to help in the great work of the Leeds Infirmary, and especially those "to whom, from the golden horn of plenty, blessing and abundance have flowed."

"I would urge upon the people of Leeds and the wide district around for which this hospital exists, that they should continue their wonderful liberality towards its maintenance. . . . Relying upon your help, which so far has never failed us, we shall go on and open the wards built by your liberality and carry them on as a part of this institution."

THE WELSH NATIONAL MEDICAL SCHOOL.

We are informed that Mr. A. W. Sheen, C.B.E. (Mil.), M.S., F.R.C.S., formerly surgeon to the King Edward VII Hospital, Cardiff, and recently to hospitals of the Ministry of Pensions, has been appointed Professor of Surgery in the Welsh National School of Medicine. We understand that at the meeting of the Council of the College at which this appointment was made it was decided to postpone the appointment of a Professor of Medicine. We understand, further, that Dr. D. J. Mackintosh, C.B., medical superintendent of the Western Infirmary, Glasgow, who was asked to inspect the King Edward VII Hospital, Cardiff, has made a report containing recommendations which it will take some time to

carry out. It would seem, therefore, very doubtful whether the School can be ready to start as a complete medical school next October, but Mr. Sheen's appointment, we are informed, is to date from the first day of that month.

Ireland.

SIR J. WALTON BROWNE.

MR. J. WALTON BROWNE, M.D., D.L., received the honour of knighthood on the occasion of His Majesty's visit to open the Parliament of Northern Ireland.

Sir Walton Browne is the senior consulting surgeon of the Belfast Royal Hospital, to the Ophthalmic Hospital, and to the Ulster Hospital for Women and Children. He was for thirty-seven years visiting surgeon to the first of these institutions, and was an immense favourite with his colleagues and the students. It would be a very lengthy matter simply to enumerate the various offices he has held and the duties he has discharged during his long, arduous, and honourable career. He resigned from the active staff of the Royal Victoria Hospital in 1912, and was made Deputy Lieutenant for the city in 1913. For over forty years he acted as surgeon to the post-office in Belfast. All his colleagues past and present, the profession in general in Ulster, and his innumerable friends everywhere will be deeply gratified at this recognition of his services, and will offer him their happiest wishes for many years of health and strength to carry the new dignity.

Correspondence.

CLINICAL AND LABORATORY METHODS.

SIR,—No one who is at all conversant with the more recent history of medical education can be ignorant of the claims of Sir James Mackenzie to be heard with respect. The story of his own successful efforts to educate his untutored mind must be familiar to every one. But in the process, and partly as a result of the process, he has reached a mental attitude which does something less than justice to many of his fellow workers.

I have waited for some writer better qualified than myself to challenge Sir James Mackenzie, but since no other has appeared I venture to enter the lists and touch his shield with blunted and not with battle point. I shall have occasion to refer particularly to my own school, but it is not to be supposed that it possesses or that I claim for it any peculiarity of excellence in teachers or methods of teaching over other London schools.

In his recent address to the pathological students at a London school Sir James stated that "his object was to demonstrate that the conception of medical research which is dominant to-day is so immature and imperfect that it renders fruitless much of the research work." This opinion obviously carries with it the implication that medical education is inefficient, and that the present system is based on rotten foundations. I do not think that Sir James explicitly says as much, but in almost every paragraph he attacks the present system and the present teaching. In his advocacy of the claims of the clinical observer he has in my judgement stated his facts wrongly, ignored the principal aims and objects of medical education, and constructed an entirely fanciful picture of the results.

"The highest aim of all research is the prevention of disease." And according to Sir James Mackenzie the clinical observer was satisfactorily dealing with this problem in such diseases as typhoid fever, syphilis, and rabies, until "a foolish idea arose that the methods by which he made his contributions to research are easily understood, . . . and their possibilities exhausted." He proceeds with a brief review of what he believes to have been the history of medical research in the last hundred years, and concludes that "as an investigator he (the clinical observer) has disappeared." I maintain that in this, the introductory portion of his address, he has misstated the facts, ignored the aims and objects of medical teaching, and drawn an entirely fanciful picture of the result.

He is wrong in his facts. It was not, for instance, the clinical observer who rendered possible the earlier diagnosis of typhoid fever but the laboratory worker; it is not the work of the clinician which has made typhoid fever uncommon, but the earlier diagnosis and the prophylactic use of typhoid injections—another laboratory method. It was not clinical observation which has enabled us to separate the paratyphoid infections from the mass of typhoid fever, but the work of the bacteriologist.

I could give similar examples from almost every paragraph, but I must go on to my second charge. The aim and object of medical research is the prevention of disease. To effect this object medicine requires not only the trained observer, but the man who has been taught to make good use of what he observes, and to test it by experiment. The teacher of medicine must therefore devote the short time which is allotted to him—a little more than one quarter of the two years which are assigned to clinical studies—to the endeavour so to train the mind of his pupils that they may become accurate observers and intelligent interpreters of experience. If he can further inspire them with a critical judgement and an earnest spirit of inquiry, he has no need to be ashamed of the result. Sir James Mackenzie ignores these aims, and would apparently have us substitute for them disquisitions on the art of prognosis, telling a story of a physician who was taken aback by the question of when his patient would be fit for work—"During the whole of his medical education he had never been taught to realize that such a question should be asked." Now, as student and teacher I have been in the wards of my own school for a quarter of a century, and I can honestly assert that I can hardly remember an occasion in going a round when this point has not been raised and discussed by the teacher. Nothing in my own school is more common than to hear the physician begin his remarks on a patient by saying, "Now, gentlemen, the first two questions which your patient will ask you are: 'Am I going to get well?' and 'When am I going to get well?'" Thereafter he sets out by question and suggestion all the knowledge which his experience and reading have given him. That experience is fallacious and judgement difficult we know from the lips of the Father of Medicine, but that experience is neglected and that the art of prognosis is ignored by the teacher is "a terminological inexactitude."

I suppose that he might answer that the hospital teacher is incapable of such teaching because he does not see patients in the early stages of their diseases, and that the only man who is fitted by his experience to undertake the task is the general practitioner. There is a small particle of truth in such a contention, but it is minute. To every physician attached to teaching schools there have come ample opportunities of study of the early symptoms of disease, and again, in my own school there is no lesson which is so earnestly impressed on the student as the importance of the early signs and symptoms exhibited or experienced by the patient. The student who comes fresh to the study of disease with a knowledge of normal physiology and anatomy must surely be taught to recognize disease in its more obvious forms; that is, his education must be begun in pathology, and he must learn by a study of morbid processes what is the course of events entailed in deviation from the normal. From such a study he is fitted to appreciate the first beginnings, and we strive to send him out, not indeed a finished practitioner, but with an intelligent appreciation of the dividing line between sickness and health, and alert to detect the point at which sickness begins. In other words, he is taught the importance of early and accurate diagnosis. Such a system in the time allowed produces a man who has been taught to use his brains to the best advantage; it does not and cannot produce a finished practitioner, nor can it give to the individual that personal experience and ready control of knowledge which can only come with years. If in the stress of practice he forgets the great aim of medical research and fails to contribute his quota, that is not due to any failure on the part of the teacher.

Lastly, Sir James Mackenzie quarrels with the results of the teaching of the past and even of the present. He could not understand and could not find an explanation of heart failure until he grasped the fact that "the disordered or impaired function of one organ upsets the others, and the signs of ill health are found, not in the inefficient organ, but in others." Yet Taylor and Osler, to take the two popular textbooks of my own student days in the

"nineties," though neither uses the term "response to effort," both lay down plainly the doctrine that the effects of disease of the heart must be measured by "its efficiency as a propelling organ, and not by the loudness of the murmur" (Taylor, 1893, p. 486); "a murmur *per se* is of little or no value in determining the prognosis" (Osler, 1901, p. 728); and go on to teach us all that Sir James alleges he has had to discover unaided.

But, though I feel that Sir James has forgotten his debt to his teachers and has maligned his colleagues of to-day, I recognize that he is inspired by a real devotion to medical progress, and I leave the lists with a quotation slightly altered from the original:

> Oblivious Knight, in whom all ill well shows,
> Kill me with spites, yet we must not be foes.

—I am, etc.,

London, June 18th. HUGH THURSFIELD.

SIR,—From Dr. Crofton's letter it would appear that in trying to describe the importance of clinical methods I seemed to disparage laboratory methods. This was not my intention, for I recognize the necessity for laboratory methods in medicine. Medical knowledge has not advanced far enough for the place of the laboratory to be recognized, and during recent years it has been used to supplant clinical methods in place of supplementing them, and in consequence it has been called upon to do things for which it is not capable. The time will come when the different methods will be co-ordinated, and research then will be systematic and not haphazard, as it is at present.—I am, etc.,

St. Andrews, Fife, June 20th. J. MACKENZIE.

REPORT OF THE VOLUNTARY HOSPITALS COMMITTEE.

SIR,—The Voluntary Hospitals Committee was appointed on January 25th "to consider the present financial position of the voluntary hospitals, and to make recommendations as to any action to be taken to assist them." It has now reported to the Government. *Parturiunt montes, nascetur ridiculus mus.*

Those of us who took a wide outlook of the function of hospitals in our national life and recognized that a supply of hospital accommodation adequate to the nation's hospital needs was desirable in the interests of the nation, as of medicine, had no expectation of any result of importance from the Committee's labours. The Committee's report has in no particular disappointed us; rather has it justified our wildest anticipations. The keynote of the report is given in two sentences: first, where it says that the voluntary system is worth saving; second, where it points out that the present financial difficulties of the hospitals are due to the war. Nothing more is needed to demonstrate the incapacity of the Committee to grasp the situation's needs.

That the war has accentuated the difficulties goes without saying, and it needed no Committee to testify to this. But that the slough in which hospitals now find themselves is chiefly due to the increase of costs owing to the war is not the case. The truth is that the voluntary system has not been able to keep pace with hospital demands, and is quite incapable of increasing hospital supply to keep pace with the nation's needs.

In the BRITISH MEDICAL JOURNAL of May 22nd, 1920, appeared an article on voluntary hospitals by Sir Napier Burnett. In it he reviewed the results of a survey of 543 voluntary hospitals. The ordinary expenditure of these hospitals in 1919 was £3,310,896, and their deficit on the year's working was £475,627. But Sir Napier Burnett proceeded to show that these hospitals supply beds at the rate of 1 per thousand of the population, and he goes on to say: "In my opinion this is inadequate, and the provision ought to be in industrial areas 3 to one thousand of the population, and in rural areas 1 or 1.5 to a thousand."

No one who has given any thought to the needs of the nation imagines that this is an over-statement, and my own opinion is that adequacy needs a multiplication of hospital beds throughout by three, and this means a multiplication of expenditure by three. To do this would approximately increase the expenditure on these hospitals from £3,300,000 to £9,900,000, and would convert the deficit, unless the subscriptions were increased, from £475,000 to over £7,000,000.

In this survey London hospitals are not included, and I personally am satisfied that adequacy needs an increase in hospital expenditure for the country of nearer fifteen million pounds than ten million pounds *per annum* over and above any capital expenditure necessary to build new hospitals and replace obsolete ones. No one who has a smattering of knowledge of hospitals, their needs, and their work dare challenge this; and still less can he deny that voluntaryism is incapable of working on such a scale.

It may be that the financial condition of the country at present is such that such an expenditure cannot be immediately contemplated. Had the Committee recognized this need, and stated that it could not be met at present, and made proposals as a bridge over a difficult time, credit might have been given to it for taking a statesmanlike view; but, as it is, the proposals of the Committee do no more than play with the business, and this means playing with the life and death of the people.

Their proposed temporary grant of £1,000,000 is not much more than at the rate of £1,000 for each hospital in the kingdom. The overdraft at the bank of the hospital with which I am connected is at present £13,000.

I offered to give evidence to the Committee that hospital needs could not be met from voluntary sources. My offer was not accepted and I was not allowed to give evidence.

I am aware of my own limitations, and I realize that my name bears but little weight. But in the proceedings of the Committee some evidence ought to have been taken from someone of the kind which I offered to it. The Report states that a small minority of witnesses suggested that liability for the hospitals should be taken over by the State, so that some evidence seems to have been taken that the day of voluntaryism is past; but the evidence to support this view is so conclusive that the decision of the Committee that the voluntary system is worth saving leads one to believe that the case against voluntaryism was not well presented, and I regret that opportunity to state it was withheld when I offered it. I need hardly say that this regret is not a matter of personal feeling.

The report of the Committee, at least as given in the preliminary account, is valueless as a serious contribution to the solution of the problem of hospital finance. All it does is to endeavour to save the Government's face.

Is the medical profession going to be satisfied with this? The profession is still wrapped up in the fetish of voluntaryism, but it is waking, and it cannot long blind itself to the fact that the interests of medicine are co-existent with an increase in hospitals that voluntaryism cannot supply. Were it to take the lead in demanding reform it would do much to rescue itself from the contempt in which, with some justice, it is held in some quarters since the debacle of 1912.—I am, etc.,

PETER MACDONALD, M.A., M.D.,
Honorary Surgeon, Eye, Ear, Nose and Throat Department, York County Hospital.

York, June 23rd.

REFRACTION WORK IN SCHOOL CHILDREN.

SIR,—When I sent you the short note of my lecture on "The axis of astigmatism," which appeared in your issue of May 7th, I did not anticipate that it would stimulate so brisk a correspondence. The discussion has turned on one issue—the relative values of subjective and objective methods of refraction work amongst school children. In my lecture I said:

> Subjective methods are of little or no value in a children's clinic, and no use should be made of them except to obtain a record of visual acuity under given conditions.
>
> No man is fit to take a share in this work of a school clinic who is not a master of the art of retinoscopy. . . . The worker must be such a master of the art that he can by the use of his mirror and lenses, discover all the details of the refraction, and judge from his results what will be the most appropriate glasses to order in any given case.

But these statements did not stand alone, as some of your correspondents seem to imply. They were linked up with two other statements or directions:

1. That the worker must undertake a strenuous course of practice of both objective and subjective methods upon critical patients, so that he may learn what is the worth of his work and how he should use it.

2. That this course of practice must be continuous. "Only by a continuous course of practice such as outlined here . . . can he cultivate a mastery of objective methods

and free himself from the thraldom of reliance upon subjective responses."

Retinoscopy is a fine art, and like all fine things it can only be mastered by strenuous effort, and the mastery of it can only be maintained by continuous practice. Also the skill and judgement needed to apply the results obtained are equally hard to learn. Retinoscopy is not "only a guide"—it is *the* guide to the correct knowledge of the refraction of a patient's eye. Its development has swept into the limbo of forgotten things a host of subjective tests once greatly valued. Donders, in his classical work (*On the Anomalies of Accommodation and Refraction of the Eye*, p. 479 et seq., New Sydenham Society's Publications), discusses ten methods of estimating astigmatism; now we do not "estimate" astigmatism, we measure it by retinoscopy. Most of the remaining and diminishing prejudice against retinoscopy arises from a failure to appreciate what is obtained by the method. During cycloplegia retinoscopy will enable us to obtain an exact measure of the refraction of the eye. That measurement does not give a bald prescription for glasses; a ripe judgement is needed to correlate the facts of the refraction with the needs of the patient. That can only be learnt by assiduous practice with critical patients in the manner I indicated in the lecture. A school clinic is not the place in which to learn it.

One word on the time employed in the work. This must necessarily vary with the skill and experience of the worker. But the demands of education authorities for quantity must be limited by the equal demand for quality. Retinoscopy and the use of its results make great demands on the mental energy of the worker, both in observation and judgement, and neither can be obtained wholesale.—I am, etc.,

London, W., June 25th. N. BISHOP HARMAN.

THE PREVENTION OF PUERPERAL INFECTION.

SIR,—There is no doubt that an exchange of views and experiences, such as the present correspondence on the important and baffling problem of puerperal sepsis, is interesting and instructive. Apart from a few fundamental bacteriological facts we have little precise knowledge of the etiology of puerperal infection, and less of its specific treatment, and so it follows that most of our views on these diseases are based less on known scientific facts than upon our own observed clinical experience. This is well illustrated in the letters published recently, in which there are set forth almost as many views of the origin and prevention as there are correspondents.

A few attribute the freedom of their patients from infection to the pursuit of a more or less elaborate technique in the conduct of labour, while others pride themselves on an absence of technique, and confidently ascribe their success to the neglect of what they consider an unnecessary ritual. Between these extremes there are all degrees of variation. Some found their faith on mercurial antiseptics, while others rely on rubber gloves. Here we find advocacy of non-interference in labour, in another place the writer is enthusiastic on the good results which follow skilled assistance during the second and third stages, and so forth.

It is not possible in a letter to go fully into this question, but I will try to separate certain known facts, to the truth of which all agree, from some probabilities which various practitioners have come to accept as truth on account of their own observations.

The facts which none will dispute are as follows:

1. The more serious varieties of puerperal fever are due to organisms (usually *Streptococcus pyogenes*) gaining access to the recently denuded placental site.
2. Organisms transferred directly from a septic lesion (throat, whitlow, septicaemia) to a parturient woman are immensely dangerous.
3. The cervical canal and upper part of the vagina are often found sterile by ordinary cultural methods, but by no means always so, as in women who have a purulent vaginal discharge in pregnancy. An examination of a large number of cases at Queen Charlotte's Hospital shows that women with a purulent *antepartum* discharge are not liable to septicaemia, though they do develop sapraemia more frequently than ordinary women. Thus, out of 43 women with a purulent discharge before labour not one developed septicaemia, and only one became severely sapraemic. Local immunity is an important factor.
4. The peri-anal and vulval skin carry faecal organisms, which, therefore, as Mr. Bonney suggests, may be carried up by hands and instruments. These organisms include at least *B. coli* and streptococci, and are therefore potential causes of septicaemia.

Little more is actually known about the causation of serious infection, though much can be surmised, and is frequently accepted as fact. For example:

(*a*) That extensive and prolonged intrauterine manipulations are very liable to cause severe infection. Theoretically this should be correct inasmuch as there are many opportunities, during such repeated insertion, for the hands and instruments to carry up microbes. But I think all will agree that there are a surprisingly large number of difficult craniotomies, breech deliveries, etc., in which infection does not occur. Thus out of 50 consecutive craniotomies at Queen Charlotte's Hospital, involving considerable manipulation—and not merely perforation for hydrocephalus—of the patients who survived the first twenty-four hours after labour, only two died from sepsis. Cases of craniotomy during which the patient died from shock or ruptured uterus just after labour have been excluded.

(*b*) Lacerations of the perineum, vagina, and cervix provide a source of infection for the placental site by growing virulent cultures in its immediate neighbourhood. On this matter I am strongly in agreement with the thoughtful letter of Dr. Beattie in the JOURNAL of June 11th.

(*c*) Manual removal of the placenta, inasmuch as the hand comes into direct contact with the open-mouthed vessels of the placental site. Here I venture to disagree with Dr. Beattie, who describes this operation as almost a routine procedure. An infected hand in the amniotic sac is far less dangerous than one in contact with the raw uterine surface.

(*d*) Severe haemorrhage and exhaustion during labour I regard as the important etiological factors of septicaemia, by diminishing resistance. The very frequent febrile puerperia following extensive manipulations prove that the microbes have been implanted in a very large number of these cases. If there has been no blanching haemorrhage or deep exhaustion the patient is able usually to combat this infection, but if her resistance has been sapped she may die of sepsis.

The few unexplained cases of normal labours followed by septicæmia can only be due to accidental (perhaps autogenous) infection by streptococci of great virulence, the entire prevention of which seems to be almost impossible. With all deference to Dr. Young, I still affirm that the surest way is to take all possible precautions in the shape of rubber gloves and antiseptic technique and minimal examinations. Obstetrical teachers give the student the ideal; they cannot do less. We all know that it is quite impossible to attain it under manifold difficult circumstances, but if the spirit is there much can be accomplished.—I am, etc.,

London, W., June 13th. ALECK W. BOURNE.

SIR,—The fear of sepsis is the nightmare of every conscientious practitioner who is engaged in midwifery practice, and the knowledge that he will be blamed for every cases of sepsis occurring in his practice, not only by the patient's friends but by members of his own profession, does not lighten his burden.

The question of the prevention of puerperal sepsis will not be settled by stating that every case is due to the carelessness or neglect of the practitioner: "The practitioner is not to shelter himself behind the fact that cases of sepsis do occur where everything has been normal and no examination has been made." Such statements as that "such infection should be as rare in midwifery practice as it has become in surgery," and that "a confinement should be conducted as a major operation" are absurd. They show that the writers have no knowledge of the conditions under which a large number of confinements have to be undertaken.

Compare the conditions of a hysterectomy in hospital with the conditions of many a confinement in a single apartment house in a lower working-class district. In hospital you have a clean bed, clean sheets, patient bathed, skin sterilized, wound closed, sterilized dressings, clean garments, and lastly skilled assistance. In the other case you find a bed which has been slept on by the husband, wife, or one or two children; it has frequently been soaked with urine, the sheets are dirty, and the patient's garments soiled; she has not had a bath. Instead of sterile dressings you have a few old rags or the discharges are allowed to soak into a nightdress which is not changed for days. Lastly, there is no skilled assistance. No surgeon would undertake a hysterectomy under these conditions, and yet the practitioner has frequently to give an anaesthetic, apply forceps, and deliver the patient. To say that under such conditions the only cause of infection is the examining finger is absurd. If proper antiseptic precautions have been taken there should be no more risk in introducing the finger into the vagina than into an abdominal wound.

A thorough use of antiseptics will reduce the number of cases of sepsis arising from the introduction of organisms at the time of delivery, but cannot prevent those which are due to organisms already in the vagina or introduced subsequently.

The blame for these preventable cases lies with the teacher more than with the practitioner. When one sees a man drop a tablet of corrosive sublimate into a basin of hard water and proceed to wash his hands in it with soap, one knows that that man's knowledge of the use of antiseptics is small.

Lest I should be suspected of excusing myself for careless practice, I may say that in the last thirty years I have attended about four thousand cases with one death from puerperal fever, and that was, I think, a case of puerperal scarlet fever, as an attendant was found to be desquamating.—I am, etc.,

Erdington, June 13th. ROBERT ANDERSON, M.D.

SIR,—Is not the subject of the prevention of puerperal sepsis analogous to war surgery? Aseptic treatment of wounds in the early days of the war produced direful results. Even in an up-to-date lying-in hospital aseptic treatment will sometimes fail. There must always be some risk of carrying up infection with the examining finger; therefore, the essential seems to be that the examiner should be antiseptic. My only use for gloves is that they keep me from being infected. I never boil forceps or other instruments at the house of the patient; I come with them probably sterile (having been boiled at home), and then see to it that they are thoroughly sterile from antiseptics. But more important than all this part of the procedure I deem to be the sewing up of tears, cervical or vaginal. And, perhaps, most important of all is the looking for them. How often one sees a slight rise of temperature promptly come down after lightly touching over a granulating patch on the posterior floor of the vagina with pure phenol. To sum up: Is not it often what we leave undone that is the cause of the trouble?—I am, etc.,

June 21st. J. C. M.

Universities and Colleges.

UNIVERSITY OF OXFORD.

PROFESSOR C. S. SHERRINGTON, President of the Royal Society, received the honorary degree of D.Sc. at the Encoenia this year.

At a congregation held on June 23rd the degree of Doctor of Medicine was conferred on Gerald K. Bowes (Christ Church).

UNIVERSITY OF CAMBRIDGE.

DR. J. A. CROWTHER, of St. John's College, has been appointed by the General Board of Studies to the post of University Lecturer in Physics as applied to Medical Radiology. The appointment is until the end of 1925.

The following candidates have been approved at the examinations indicated:

THIRD M.B., B.CH.—*Part I, Surgery, Midwifery, and Gynaecology*: G. F. Abercrombie, A. C. Ainsley, F. Allen, S. H. Barnett, C. C. Beney, E. M. Burrell, W. R. Carling, C. N. Carter, A. O. Courtis, D. Crawford, C. Dunscombe, D. D. Evans, L. E. Frazer, H. J. H. Hendley, R. C. Hewitt, B. E. Jerwood, A. V. Johnson, P. B. Kittel, R. B. P. Lansdown, S. Orchard, E. S. Orme, F. A. Phillipps, J. H. Porter, W. Shaw, G. W. Theobald, G. I. F. Tweedie, D. C. L. Vey, J. P. Wells, C. E. Whitting, C. H. Whittle, H. L. Willey. *Part II, Medicine, Pathology, and Pharmacology*: A. C. Ainsley, A. E. Clark-Kennedy, B. K. T. Collins, H. T. Cubbon, E. Donaldson, N. D. Dunscombe, V. N. Fenton, E. A. Fiddian, C. I. C. Gill, W. S. Gross, E. A. H. Grylls, G. Habgood, A. T. Hawley, E. C. Malden, L. B. Maxwell, R. A. Olphert, W. H. Palmer, H. A. A. Pargeter, F. A. Phillipps, P. W. Putnam, W. Raffle, A. P. Saint, W. Shaw, T. H. Somervell, E. D. Spackman, H. N. Stafford, R. A. P. Starkie, S. D. Sturton, G. W. Theobald, G. D. C. Tracy, R. R. Traill, Y.-S. Wan, C. H. Whittle.

M.CH.—J. B. Hunter.

UNIVERSITY OF LONDON.

AT a meeting of the Senate, held on June 22nd, Sir Sydney Russell-Wells, M.D., was re-elected Vice-Chancellor for the year 1921–22.

The following were among the grants approved from the Dixon Fund for the year 1921–22:

£50—Mr. F. J. F. Barrington, M.B., B.S., for research on the nervous mechanism of micturition.

£40—Miss G. Z. L. Le Bas, B.Sc., for researches into the part played by lipoids in immunity and bacteriological intoxication.

£50—Professor Karl Pearson, M.A., F.R.S., to defray the cost of the publication of drawings of the sesamoid bones of the knee-joint to be used to illustrate a memoir on the subject now in progress.

The Scholarships Committee reported the appointment for 1921–22 of Mr. E. C. Warner, of Guy's Hospital Medical School, to the University Studentship in Physiology of the value of £50.

VICTORIA UNIVERSITY, MANCHESTER.

THE following candidates have been approved at the examination indicated:

M.D.—B. Browning, T. E. Dickinson, W. H. Kauntze, R. L. Newell, J. A. Panton, H. Platt, D. McK. Sutherland.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—May T. Bassett, E. S. Clayton, R. D. S. Inman, R. T. Lee, Elsa F. Paige, R. Platt.

Obituary.

DR. SAMUEL BEATTY, of Pitlochry, died on June 16th in his 61st year. He was a native of Antrim, and was educated at Trinity College, Dublin, and the University of Edinburgh, graduating M.B., C.M.Edin. in 1886. He had practised in Pitlochry for thirty years, having succeeded the late Dr. W. S. Irvine, his former partner. Dr. Beatty showed a warm interest in charitable and philanthropic matters; he was chairman of the Pitlochry School Management Committee, parochial medical officer and public vaccinator for Moulin, certifying factory surgeon, and medical officer to the Post Office. He took great interest in the work of the British Medical Association, and, in addition to having served as President of the Perth Branch, was at the time of his death a member of the Branch Council and the Deputy Representative in the Representative Body.

WE regret to announce the death of Dr. JOHN DOWNIE, of Bellevue, Wakefield, which took place on June 7th in Driffield Cottage Hospital, from injuries received in a motor cycle accident at Eastburn. Dr. Downie graduated M.B., Ch.B. of Glasgow University in 1900, and had been in practice at Wakefield in conjunction with his brother since shortly before the war. After the outbreak of war he proceeded to France with the Yorkshire Mounted Brigade Field Ambulance R.A.M.C.T., and he was awarded the Russian Order of St. Anne and subsequently the D.S.O., both in recognition of acts of gallantry in the field. The tragic ending to a promising career will be greatly regretted by Dr. Downie's many friends.

DR. HERBERT STANLEY BALLANCE, of Weston-super-Mare, died on June 11th, aged 56. He was educated at King's College, and took the diplomas of M.R.C.S. and L.R.C.P. in 1890, and graduated M.B., B.S. Lond. in 1892 and M.D. in 1894. He held the posts of resident medical officer of the Hospital for Consumption, Brompton, house-surgeon to King's College Hospital, and house-physician to the General Lying-in Hospital, York Road, and at the time of his death was surgeon and surgeon in charge *x*-ray department of the Weston-super-Mare Hospital. He was a member of the Bristol Division of the British Medical Association and of the Bristol Medico-Chirurgical Society.

Medical News.

THE Admiralty has appointed a committee under the presidency of Surgeon Vice-Admiral Sir Robert Hill, K.C.M.G., Medical Director-General, to inquire into the medical staffs and naval and civilian complements of the R.N. hospitals.

DR. J. G. BEASLEY, of Rowley Regis, has been presented with a gold chiming watch on the occasion of his retirement from the posts of medical officer of health and school medical officer. The former post he had held for nearly fifty years. The presentation was made on behalf of the medical men of Old Hill, Cradley Heath, Cradley, Netherton, Halesowen, Blackheath, Quarry Bank, and Rowley Regis, by Dr. T. M. Tibbetts. Dr. Beasley, who was prevented by ill health from being present, has addressed a letter of thanks to the subscribers.

IN the circular which has been sent to approved societies by the Ministry of Health sanctioning schemes for additional benefits, the provision of nursing service for members of the societies is mentioned. Lord Cave's committee's report on the voluntary hospitals favours a contribution to the hospitals by the approved societies from the surplus in hand in recognition of the services rendered to their members rather than any scheme of insurance by payment in advance or by compulsory payment afterwards. The Central Council for District Nursing in London is anxious to make it clear that nursing associations—which provide for the nursing of patients in their own homes—may receive contributions from the approved societies either under paragraph 20 of the Act of 1911, or by way of additional benefits out of their surplus. The Central Council has already informed the approved societies which have members resident in London that it is in a position to arrange for adequate nursing for all such members.

JUNE 28TH is the sixth anniversary of the opening of Queen Mary's Convalescent Auxiliary Hospitals at Roehampton for sailors and soldiers who lost limbs in the war; it is hoped that 200 beds may be permanently endowed, so that, with the help of the capitation grant from the Government, the institution may be maintained. Over 41,000 officers and men have needed artificial legs and arms, and over 22,600 new patients have passed through the hospitals at Roehampton since June, 1915. The instructional workshops, which provided training in different trades and commercial classes, have now been closed, as, fortunately, most of the disabled men trained in them have found suitable employment. The hospitals are, however, kept constantly busy with cases readmitted for second limbs and with repairs. Since the beginning of 1918 limb repairs to the number of 16,518 have been dealt with through the post alone, and in the out-patient department frequently fifty to sixty men attend in a day for major or minor repairs to their limbs.

MR. HENRY P. STURGIS, upon his retirement from the chairmanship of the Royal London Ophthalmic Hospital (Moorfields), which he has held for the last twenty-four years, has been presented by members of the committee and medical staff with a handsome silver salver, as an expression of their appreciation of his services.

DR. H. C. MACTIER, M.B.E., Honorary Secretary and Representative in Representative Meetings for eleven years of the South Staffordshire Division, and Honorary Secretary of the Wolverhampton Local Medical and Panel Committees since their commencement, has been presented with a cheque for £108 15s. from the practitioners in the area of the Division as an appreciation of his work as secretary of these bodies and his many other services to the local profession, including that of honorary secretary to the Local Medical War Committee. This is the second time that Dr. Mactier has been the recipient of such a testimonial, as in 1913 he received a cheque for 100 guineas in recognition of his strenuous services during the days of the inception of the Insurance Act.

THE 80th annual meeting of the Medico-Psychological Association of Great Britain and Ireland will be held in London, under the presidency of Dr. C. Hubert Bond, C.B.E., from July 11th to July 15th. The presidential address, which will deal with the position of psychological medicine in the medical and allied services, will be delivered at the house of the Royal Society of Medicine, on on Tuesday, July 12th, at 3 p.m. On Wednesday Dr. C. S. Myers, F.R.S., will speak on psychological medicine in relation to industry, and a number of papers will be read; the annual dinner will take place at the Connaught Rooms on the evening of the same day. The dinner will be attended by, among other guests, the Lord Chancellor and the Minister of Health. On the morning of July 14th papers will be read, and in the afternoon visits will be paid to the Springfield Mental Hospital, Tooting. On Friday, July 15th, papers will be read in the morning, and in the afternoon a visit will be paid, at the invitation of the London Asylums Mental Deficiency Committee, to the mental hospitals at Epsom.

THE annual general meeting of the Federation of Medical and Allied Societies was held at 11, Chandos Street, London, W.1, on Tuesday, June 28th. In the unavoidable absence of the President (Sir Berkeley Moynihan) the Vice-President (Sir Malcolm Morris) delivered an address. The annual report of the Executive Council was received and adopted. The president, vice-president, the honorary treasurers and auditor were reappointed for the ensuing year, and thirty societies were elected to representation on the Executive Council. The result of the ballot for a representative of individual members was declared in favour of Dr. Ford Anderson.

WE are glad to see that the rather wide claims that have been made at several clinics in Germany for the intensive *x*-ray treatment of cancer are to be subjected to investigation. We stated some time ago that Dr. C. C. Anderson, the Manchester Royal Infirmary scholar, was to go to Erlangen to observe the treatment there used. The West London Hospital at Hammersmith has recently announced that it has imported an apparatus from Dr. Wintz's clinic at Erlangen, and that it is proposed to make the results public. It will not, however, be possible to draw any trustworthy conclusions until after the elapse of a considerable period.

THE retirement of Dr. F. J. Stevens from the post of medical officer of health for Camberwell, announced in our issue of June 18th, will take place as from March 31st, 1922.

THE annual meeting of the school medical group of the Society of Medical Officers of Health was held in Birmingham on May 28th, with the President (Dr. G. A. Auden) in the chair. Correspondence from the British Medical Association, inquiring the policy of the group regarding recognized holidays for school medical inspectors, was read and considered, and after full discussion the following resolution was passed: "That where practicable all school medical officers and assistant school medical officers shall have the usual school holidays, and in any case shall have a minimum of four weeks' holiday." It was pointed out, in the course of the discussion, that in most towns the medical inspectors had the usual holidays, and that this was found beneficial to the efficiency of the medical and nursing staffs.

LIEUT.-COLONEL HENRY SMITH, C.I.E., I.M.S., gave an address to the Ophthalmological Society of Pittsburgh, Pennsylvania, on May 20th.

AT a meeting of the Association de la Presse Médicale Française, on June 4th, Dr. Le Sourd (*Gazette des Hôpitaux*), was elected President, Dr. R. Cruchet (*Journal de Médecine de Bordeaux*) and Dr. Loeper (*Progrès Médical*) Vice-Presidents, Dr. Pierra (*Revue de Gynécologie*), General Secretary, and Dr. G. Baillière (*Paris Médical*), Treasurer.

DURING April four cases of rabies occurred in Holland, one in the Province of Groningen and three in the Province of Drenthe.

DURING March 444 cases of plague occurred in Java, all of which were fatal.

THE triennial International Congress of Urology will be held at Paris from July 5th to 7th, with Professor Legueu as president. Papers will be read by, among others, Mr. Hurry Fenwick, Dr. Langdon Brown, Mr. Frank Kidd, and many distinguished French, Italian, and American urologists. An exhibition of instruments and appliances will be held and visits will be made to the hospitals, where special operations will be performed. There will be a reception at the Hôtel de Ville and other social functions. At the conclusion of the congress tours to the battlefields have been arranged.

A MONUMENT in memory of the great French chemist, Adolphe Wurtz, will be unveiled at Strasbourg on July 5th.

DR. W. W. CORT and Dr. E. L. AUGUSTINE of Baltimore, with Dr. J. E. ACHERT, Kansas State Agricultural School, have been sent by the International Health Board of the Rockefeller Foundation to Trinidad to study hookworm disease there.

AN invitation to attend the clinical course of lectures and demonstrations on heliotherapy, to be given at Leysin from August 16th to 20th by Dr. A. Rollier and his assistants, will be sent to any medical man or woman expecting to be in Switzerland, on application to Dr. Rollier, Leysin, Switzerland.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscra, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*: telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

MRS. E. M. HENDLEY (Caxton) writes in reply to "Member B.M.A. for twenty-five years": We have been using a kitchen *range*, not stove, made entirely for anthracite for just a year and find it excellent. We installed the smallest size, and it is ample for cooking all meals and giving continuous hot water day and night. The bath tank is immediately over the kitchen, and supplies hot water to two lavatory basins—the bath and scullery. With care the fire never goes out, being banked up at night and all dampers shut. It is very clean, there is no smoke or dust, and it is labour-saving as there is no fire to light every morning. The difficulty is to get anthracite, and after various experiences we eventually purchased a truck-load by rail.

PERSISTENT HEART BEAT AFTER CESSATION OF RESPIRATION.

DR. D. S. CLARKE (Park Royal Hospital, Willesden, N.W.10) asks for information as to the longest interval during which the heart's action has continued after sudden and apparently complete cessation of the respiration. He mentions a period of 8 hours 10 minutes.

INCOME TAX.

"E.6" has been taking post-graduate courses for the D.P.H. while holding an appointment as resident in a hospital. Can he deduct the class and examination fees "as necessary expenditure" in his income tax return? He also inquires as to the method of returning fees for locumtenent work.

*** He can deduct only expenses necessarily incurred "in the performance of his duties," and the fees in question seem to be incurred outside those duties. A return for locumtenent work should be made under Schedule D, for the first year on that year's earnings, and for the second year on the same amount.

"O. G. C." asks for a reference to the authority for a recent reply to the effect that a salaried assessor of the Ministry of Pensions can deduct subscriptions and the cost of books necessary for keeping up his medical knowledge.

*** Rule No. 9, applying to Schedule E, provides that where a person is necessarily obliged to expend money wholly, exclusively and necessarily in the performance of his duties the expenditure can be deducted. We assume that an assessor is, impliedly, obliged by the Ministry to maintain his medical knowledge at a proper standard, and for that purpose must keep abreast of modern medical science.

LETTERS, NOTES, ETC.

SIR JAMES W. BARRETT (Melbourne, Victoria) writes: My attention has been directed to statements appearing in Great Britain to the effect that I gave evidence on the subject of the prevention of venereal disease before an Interdepartmental Committee in 1919. The Committee may have had some of my publications in front of them, but I write to say that I was neither asked for, nor have I given any evidence in connexion with that inquiry. It is therefore not correct to say that my evidence had been considered.

HERPES ZOSTER AND VARICELLA.

DR. H. LAWRIE (Ramsbottom) writes: The following case (a coincidence at least) may be worth recording. There is no chicken-pox in the district at present. It was notifiable up to the end of May, and the last case was notified early in May. The family could have had no connexion. On May 27th last Mrs. W. brought to my surgery her daughter, aged 12 years, suffering from a well-marked attack of herpes zoster. This girl had an attack of chicken-pox when she was 5 years old. On the morning of June 12th the two youngest members of the family, aged respectively 15 months and 5 years, were observed by their mother to have a rash on their face and body. This proved to be the rash of chicken-pox.

THE SQUATTING ATTITUDE IN LABOUR.

DR. NORMAN H. JOY (Theale, Berkshire) writes: Dr. N. Beattie writes: "The great point is, not to leave things to nature." Here I disagree with him. The less we interfere with nature the better things will go up to a certain point. We have got into the habit of interfering with nature in the second stage. What is the really natural way that a woman should be delivered? Like the natives of Africa, squatting down as if defaecating. What are the advantages of this position? Dr. Beattie writes: "One may sit for two hours watching the head bobbing into and out of the vagina"; "the last pain gets the head through far enough to begin a tear." Why is all this? Let her squat down; what happens? The head does not bob in and out of the vagina. When it gets into the vagina it stops there, or rather only retreats a very little way. The woman of course only squats during the pain, but on standing up the child, by its weight, is still pressing towards the vagina. When lying down the whole tendency is for it to retreat. When the head begins to stretch the perineum it keeps it still dilated somewhat between the pains, gradually overcoming the resisting muscle, etc. Then again, all the muscles of the perineum are relaxed as much as possible, because the knees are as far apart as possible—a position many of us try to get the patient into when lying on a bed during the last pain.

My experience of this form of delivery dates from some years ago. I attended a woman in a cottage and watched the head bobbing in and out of the vagina for a long time. Then she said to me: "Please, doctor, the doctor I had before, in Wales, used to let me squat on the floor." I promptly spread a sheet on the floor and the woman squatted right down so that the vulva was a few inches from the floor. The child was born in the first or second pain on the floor.

I was knocked out of practice for some time, but the other day when acting as locumtenent I attended a former midwife who was having her first baby. Things went very slowly. I suggested that she should try squatting, and she consented at once, leaning against the bed. The labour was soon over; I let her have her last pain on the bed, taking care to keep the knees well apart. There was not the slightest tear in the perineum, although it looked like one that would require some stitches in it when the head was beginning to stretch it. The patient was very pleased with the result.

ERRATUM.

IN Dr. Charles Singer's letter on "What is Science?" published in last week's JOURNAL (p. 954) there was a printer's error. The word "neuristic" in line 17, column 2, should, of course, be "heuristic."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 30, 34, 35, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 32, 33, and 34.

THE appointments of certifying factory surgeons at Milngavie (Dumbarton) and Pitlochry (Perth) are vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line...	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.